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UNIVERSITY OF ALBERTA

EFFECTS OF INSTRUCTIONAL STYLE ON MOTHERS' ABILITY TO FOLLOW THE ATTENTIONAL FOCUS OF THEIR LANGUAGE IMPAIRED TODDLERS

BY

SUSAN K. RAFAAT

(C)

A Thesis Submitted to the Faculty of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE

IN

SPEECH - LANGUAGE PATHOLOGY

DEPARTMENT OF SPEECH PATHOLOGY AND AUDIOLOGY

EDMONTON, ALBERTA

FALL, 1991

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Susan K Rafaat

Susan K. Rafaat
#58, 3302-50 Street, N.W.
Calgary, Alberta, T3A-2C6

Date: September 27/91

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled, **Effects of Instructional Style on Mothers' Ability to Follow the Attentional Focus of Their Language Impaired Toddlers,** submitted by Susan K. Rafaat in partial fulfillment of the requirements for the degree of Master of Science.

Dr. Gary Holdgrafer, Supervisor

Dr. Paul Hagler

Dr. Linda McDonald

Date: Sept. 27, 1991

ABSTRACT

Researchers have found that training caregivers to facilitate language development has a positive influence on children's socio-linguistic growth. Recently, investigators have examined the effects of differing clinician-caregiver interactions on caregivers' use of language facilitation strategies. The purpose of this study was to determine the relative effectiveness of directive and non-directive models in training mothers to verbally follow the attentional focus of their language impaired preschoolers during play activities. Effects of maternal joint-attentional statements on children's verbal output were also explored.

Fourteen mother-child dyads were randomly assigned to either a directive or non-directive training group. Children ranged in age from 24 to 39 months, and presented with expressive language delays from 6 to 20 months. Intervention involved two 30-minute sessions of mothers viewing vignettes from videotapes of another mother and her child interacting. Vignettes were pre-selected to demonstrate verbal following (Mother Follow) and leading (Mother Lead) of the child's attentional focus. They were discussed utilizing either a directive or non-directive approach. A pre- and post-intervention videotape of each mother playing with her child was obtained. Mother utterances were coded as Mother Follow (MF) or Mother Lead (ML), relative to the attentional focus of their children. Children's utterances were analyzed according to quantity of output, conversational role (Child Lead or Child Follow), intelligibility, and complexity. Performance on each dimension, in response to MF and ML utterances, was compared.

Mothers in both groups significantly improved in their ability to verbally follow their children's attentional focus. There was, however, no difference between groups. Children exhibited a greater quantity of verbalization in response to MF utterances and more often assumed the Child Follow role in response to ML utterances. There were no significant differences in complexity or intelligibility of child utterances in response to MF or ML utterances, or relative to Child Lead or Follow conversational roles, except for CF in response to ML.

Results are discussed in the context of extraneous variables which may have impacted on the outcomes obtained. Child language measures are discussed within the context of joint attentional theory. Finally, implications for future research are considered.

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CHAPTER 1

Introduction

Over the past two decades, the training and utilization of parents as change agents for their children has received much attention in the early intervention (EI) literature. Generally, parents are reported to be effective in improving a variety of child behaviors, including pro-social behaviors, feeding, language, and toiletting (see Cunningham, 1985; Johnson & Katz, 1973; Topping, 1986; Wulz, Hall & Klein, 1983 for reviews).

Within the speech-language domain, parent training programs have typically focused on highly structured behavioral techniques to teach speech and language skills in such diverse child populations as the economically disadvantaged, the sensory impaired, and the developmentally delayed (Topping, 1986). The recognition of the influence of social context on language acquisition (Bates, 1976) has resulted in a shift of language intervention to more "natural" contexts involving interaction with primary caregivers and significant others (Fey, 1986; MacDonald & Gillette, 1982). Specifically, parents are being encouraged to improve the quality of their interactions with their language-impaired children through the use of a technique known as *following the child's lead or attentional focus* (Cross, 1984; Manolson, 1985). Parents are taught to be contingently responsive to verbal and non-verbal indications of the child's attentional focus (Cross, 1984) or conversational topic (MacDonald & Gillette, 1982) during play and other routine social exchanges. Indicators of attentional focus include physical and/or visual engagement with a

contextual element, as well as communicative acts of requesting, commenting or rejecting that are gestural/vocal or verbal (Holdgrafer & Dunst, 1986; 1990; in press). The parent maintains the child's topic in his or her next utterance in the exchange. Generally, this technique has been found to effectively promote children's socio-linguistic development. Increases in lexicon, mean length of utterance (MLU), and use of two-word phrases are some of the linguistic changes reported (see Fey, 1986; Howlin, 1984; for comprehensive reviews). Improvements in social-conversational abilities, such as topic initiation and turntaking, have also been reported (Girolametto, 1988). Following the child's attentional focus is considered an effective strategy because maternal linguistic input is finetuned to the child's interest and knowledge base which should increase motivation to learn language and decrease information processing demands (Mahoney, 1975; Rocissano & Yatchmink, 1983).

Regardless of language intervention strategy, speech-language pathologists (SLP's) commonly employ an expert or directive model of interaction, where a uni-directional flow of information is provided from professional to parent (Cunningham & Davis, 1985; Darling, 1983). In contrast, the potential virtues of a collaborative model, with the professional playing the role of guide or facilitator can be found in the clinical supervision (Webster & Hagler, 1989) and early intervention literature (Dunst, Trivette, & Deal, 1988). Specifically, Dunst et al. (1988) have argued for the collaborative model to enhance a sense of competency and well being in parents. Few SLP's, however, appear to have acknowledged such an approach in relation to the therapeutic process.

A 1979 survey on parent involvement practices in the speech clinic indicated that 89% of 115 respondents from across Canada and the United States felt that parent involvement was an essential component of clinical service (Cartwright & Ruscello, 1979). Consequently, further investigation into the efficacy of the methods used in this training appeared to be warranted. Specifically, comparing the efficacy of expert versus collaborative models for promoting parent-child interaction considered optimal for child language acquisition is particularly relevant.

Purpose of the Study

The primary purpose of this study was to determine the relative effectiveness of "professional as facilitator" and "professional as expert" interactive styles in training mothers to verbally follow the attentional focus of their language-impaired preschoolers during play activities. A secondary purpose was to replicate the findings of previous parent training studies with respect to the positive effects of maternal verbal following on child verbal output. Of particular interest was the effect of Mother Follow (MF) and Mother Lead (ML) utterances on quantity, conversational role, intelligibility, and complexity of child utterances.

CHAPTER 2

Review of the Literature

Parent-Child Interaction and the Effect on Language Learning

Early parent-child interaction reportedly influences child development in many domains, including the cognitive (Bruner, 1977), the emotional (Snow, 1977), and the linguistic (Cross, 1984; Price, 1984). Within the speech and language domain, a transactional model of interaction has been proposed to explain early language acquisition (McLean & Snyder-McLean, 1978). Such a model departs from the traditional view of the child as a passive respondent in communicative exchanges (Larsen, 1988). Essentially, the transactional model posits that children acquire language through interaction with the environment, specifically via reciprocal relationships with mature language users such as the mother and/or father. The theory is bi-directional and proposes the mutual effects of parent and child on one another (Bell, 1968).

Schaffer, Collis, and Parsons (1977) stated that, "Interpersonal synchrony in the behaviour of mother and infant can be found from birth onward" (p. 291). Kaye (1977) identified the infant's suckling activity in the first few weeks of life as the earliest example of infants and mothers learning to give and take turns. He further hypothesized that the structure developed in infancy is a social structure, enabling the child to learn through interaction with adults (Kaye & Charney, 1980). Similarly, Bruner (1975; 1977) argued that the initial acquisition of communicative skill occurs in the context of mother and child carrying out joint tasks or activities, and that such

accomplishments are the precursors and/or prerequisites to verbal communication.

Research with preschool-aged children has also supported transactional theory, acknowledging the contributions of both the parent and the child as equal partners in socio-communicative interchanges (Conti-Ramsden, 1985, 1990; Cunningham, Reuler, Blackwell, & Deck, 1981; McLean & Snyder-McLean, 1978). The adult's utterances modify the language and behavior of the child, just as the child's communicative attempts, or lack thereof, influence the adult's linguistic and non-linguistic communicative efforts.

The nature of maternal speech to normal language-learning children has been well documented (Conti-Ramsden, 1985). Maternal input has been reported as syntactically and semantically simplified (Snow, 1972), repetitive and fluent (Cross, 1978), and semantically related to previous child utterances (Lieven, 1984). As such, it has been found to exert a positive influence on child language learning. Other features of adult speech that have been identified as facilitative in the language acquisition process have included expansions or recasts (Nelson, Carskaddon, & Bonvillian, 1973; Scherer & Olswang, 1984) and positive feedback (Snow, Midkiff-Borunda, Small, & Proctor, 1984).[1] In comparison, features of adult speech, such as frequent topic change and diverting child attention from current activities have been related to lower rates of language development (Snow et al., 1984; Tomasello & Farrar, 1986).

---

[1]See Holdgrafer (1987) for a comprehensive list of interactional language strategies used by adults.

Several studies have indicated that parents of language-impaired children do not make as frequent use of contingent responsiveness as parents of children acquiring language normally (see Cross, 1984 for a review). Indeed, different interaction patterns have been identified for mothers and their normally developing children compared to mothers and their handicapped children diagnosed with Down syndrome (Petersen & Sherrod, 1982; Weistuch & Lewis, 1985), mental retardation (Cunningham et al., 1981; Marfo, 1984; Marshall, Hegrenes, & Goldstein, 1973), and language-specific delays (Bondurant, Romeo, & Kretschmer, 1983; Conti-Ramsden, 1990; Lasky & Klopp, 1982; Petersen & Sherrod, 1982; Price, 1984; Tiegerman & Siperstein, 1984; Wulbert, Inglis, Kriegsmann, & Mills, 1975). As summaries of four of the aforementioned investigations will attest, differences in the degree of maternal directiveness and amount of positive maternal feedback provided to language-normal as opposed to language-impaired children appears to be a relatively consistent finding across studies.

Cunningham et al. (1981) examined the verbal and behavioral interactions of 18 normal and 18 retarded children with their mothers in 15-minute free play and 15-minute structured task situations. The groups were equated on the basis of mental age (MA), as determined via standardized scores on a receptive vocabulary test. They were also matched on sex and socioeconomic status. The normal and retarded groups were divided into higher and lower categories by splitting the groups at MA scores of 28 months. All children included in the mentally retarded group were identified as having scored at least two standard deviations below

the mean on standard psychological, speech, and perceptual-motor evaluations. An antecedent-consequent coding scheme was utilized to analyze mother-child interactions.

Results revealed that mothers of retarded children were more directive in both play and task settings, that they initiated fewer interactions than mothers of normal children, and were less likely to reinforce their children's compliant behaviors. The retarded children were reportedly no less compliant than their normal counterparts, however their mothers used more commands and were less likely to respond positively to their compliant behaviors. In the retarded group, children with higher MA scores interacted more often, were more responsive to maternal interaction, and were more compliant than the low MA group, however their mothers proved less responsive to their interactions than mothers of children with lower MA scores.

Petersen and Sherrod (1982) also chose to examine parameters of maternal language style associated with children's language delay. In addition to looking at the mother-child interactions in normal language-learning and mentally retarded populations, they investigated mothers' interactions with their language-specific delayed children (i.e., children who exhibited no physical or psychological impairments in addition to the language delay). Two age groups of Down Syndrome children were matched on mean length of utterance (MLU) with two groups of nonretarded, language-delayed children, and two groups of normal children. A total of 30 mother-child dyads were involved in the study. Low MLU groups consisted of subjects at approximately a one word level, whereas the

high groups consisted of subjects with MLU's of approximately two words. Audio tapes of 20-minute free play sessions in the home were obtained for each dyad and the initial 10 minutes of each was transcribed and coded into functional types of maternal language. These categories included MLU, type-token ratio, and whether maternal utterances were semantically or unsemantically related to the child's conversation and activity. The remaining categories incorporated more molecular types of maternal input, including requesting behaviors, seeking language, giving information, and so forth.

Results indicated that mothers of nonretarded, language-delayed children made use of more language that was irrelevant to the interaction than did mothers in the other two groups. In turn, the mothers of Down Syndrome children used more irrelevant language than the mothers of the language-normal children. The authors reported that almost one-third of the maternal utterances to the low-MLU language-delayed children were inappropriate to the children's activities. This proportion rose to approximately one-half for the high-MLU language-delayed children. Such a finding illustrates "a striking lack of rapport between the language-delayed children and their mothers" (p.396). Mothers in this group were also found to make fewer approving comments and to generally provide less feedback to their children.

Bondurant et al. (1983) chose to compare the language behaviors of mothers of normally developing children with mothers of expressively-delayed children. The subjects consisted of fourteen children who had been diagnosed with expressive language delays of

at least one year and their mothers, and fourteen age-matched children who displayed normal language development and their mothers. All children were judged to be developing normally in the areas of physical, personal/social, intellectual, and educational development and presented with no demonstrable visual or auditory impairments. They ranged in age from 2 to 5 years. Each mother-child dyad was audiotaped during an interaction in a structured task situation and an unstructured free play situation. Transcripts were then analyzed to determine mothers' use of reports, comments, questions, directives, acceptance utterances, and rejection utterances. Frequency counts of total numbers of utterances, utterances per minute and mean length of utterance were also obtained. Analysis of transcripts from both the structured and free play situations revealed that mothers of language-delayed subjects were more directive and less accepting of their children's language and actions when compared to the mothers of the normally developing children.

Finally, Conti-Ramsden (1990) examined mothers' recasts and other contingent replies (such as continuations, imitations, and topic changes) to their language-impaired and non-language-impaired children. Of particular interest was the nature and frequency of mothers' recasts to the two groups of children, within the context of the characteristics of the children's speech and their participation in dialogue. A total of 28 mother-child dyads participated in the study; 14 in the language-impaired, and 14 in the non-language-impaired groups. Each pair in the two groups of children was matched for MLU. An index of speech intelligibility was calculated for each child by counting the number of intelligible utterances and dividing by the

total number of utterances. All children displayed intellectual functioning within normal limits and demonstrated a minimum of 7 months expressive language delay. Personal interviews were carried out with a parent of each child prior to their participation in the study to rule out neurological, behavioral-emotional, and/or other developmental concerns. All mothers possessed at least a high school education. Each mother-child dyad was video-taped playing together in a 15 minute unstructured free play session. Five minute continuous play interactions were then transcribed from these recordings and were analyzed according to a dialogue participation code (where both verbal and nonverbal turns and initiations by the partners were examined), a mothers' contingency coding system (which analyzed mothers' replies to the children's preceding turn according to five categories: simple recasts, complex recasts, continuations, imitations, and topic changes), and a mothers' speech acts coding system, (to determine what function each of the mother's replies may have played in discourse).

The above analyses revealed that the amount of talk was not different for the two groups, however, in terms of dialogue participation, mothers of language-impaired children initiated more and their children initiated less. Mothers of language-impaired children also made use of a greater number of meaning illocutions (i.e., requestives, assertives, and directives) and fewer cohesion illocutions (i.e., responsives and regulatives) when replying to their children with recasts and continuations than did the mothers of language-normal children. Mothers of language-normal children, on the other hand, were observed to use a greater proportion of

complex recasts than mothers of language-impaired children. Language-impaired children appear to need linguistic input that structurally only moderately departs from their own if it is to help them in processing language. Therefore, Conti-Ramsden suggested that it may not be surprising that their mothers' would make use of a greater proportion of simple, as opposed to complex, recasts. The fact that these mothers were, however, also simultaneously more frequently making use of meaning illocutions may have reduced the likelihood of capturing their children's attention and, accordingly, may have minimized the potential for language learning.

In summarizing the above research, mothers' interactions with language-normal as opposed to language-impaired children do differ, particularly with respect to directiveness and use of positive feedback. Encouraging mothers to follow their children's attentional focus would decrease parental directiveness and assist in fostering progress in language acquisition. Maternal language input is most relevant to the child when it is semantically contingent to the child's focus of attention, which also requires less cognitive resources for processing the language input (Rocissano & Yatchmink, 1983). Language development is promoted in the context of reciprocal mother-child play interaction that provides a nonlinguistic scaffolding for young children (Tomasello & Farrar, 1986).

It is widely recognized that parental input is not the only variable influencing language-delayed children's acquisition of language (Cross, 1984; Lieven, 1984). Nevertheless, the findings of mother-child interaction research to date indicate that promoting parental involvement and the use of joint attentional strategies

benefits language-impaired children in the language learning process (Cross, 1984; Fey, 1986).

Effectiveness of Parent Training Programs in Early Language

Use of parents as primary intervention agents has been motivated by a number of factors including pragmatic theories of language (Bates, 1976), manpower shortages, extra-clinic generalization and maintenance of behavior change, cost effectiveness, and access to treatment programs (Fey, 1986; Howlin, 1984). More specifically, pragmatic theories of language indicate that language is learned in natural social contexts during interactions with mature speakers. Since the language-impaired child spends more time at home with family members than in the speech clinic, targeting language goals in the home makes practical sense and circumvents the problems of transferring language use from the clinic to more naturalistic environments. Use of parents as primary intervention agents also allows for the treatment of more children at a significantly lower cost per child. This may prove to be a viable time-saving alternative to direct therapy for clinicians dealing with lengthy treatment waiting lists (Fey, 1986). Additionally, such an approach is ideally suited to families living in rural areas where centre-based programs are not offered, or to families unable to attend centre-based programs due to transportation difficulties (Fey, 1986; Peterson, 1987).

As mentioned earlier, parent training has ranged from teaching parents to implement highly structured instructional programs to promoting more reciprocal social interaction as the context for

language learning. The former approach has usually involved training in the administration of specific procedures such as reinforcement, modelling, and fading. Parents are trained to record their children's responses and to report progress to the clinician, who provides them with ongoing language activities. The activities are designed to teach children pre-selected and highly specific target behaviors such as speech sounds or grammatical structures. The latter approach has usually involved instructing parents in the use of language facilitation techniques such as following joint attentional focus, expansions, and expatiation while discouraging commands and noncontingent questions (Fey, 1986). Specific language goals may or may not be specified for the parent. Creating the social context for language learning is the first priority. Regardless of approach, the use of teaching methods such as discussion, lectures, practice with feedback, demonstration teaching, and written instruction have all been documented (see Cunningham, 1985 for a review of parent training methods). The current study involves the latter approach, consequently, the literature reviewed will cover only that.

Generally, parent training has been found to positively effect change in parents' interactive patterns with their developmentally delayed, language-impaired children (Cheseldine & McConkey, 1979; Girolametto, 1988; Holdgrafer, Kysela, & McCarthy, 1989; Iven, Albritton, Eaton, & Montague, 1989; Mahoney & Powell, 1988; Mash & Terdal, 1973; McConkey & O'Connor, 1982; Price, 1984; Price & Bochner, 1984; Seitz & Hoekenga, 1974; Seitz & Riedell, 1974; Tiegerman & Siperstein, 1984; Weistuch & Lewis, 1985). Concomitant improvements in children's interactive and linguistic

abilities have also been reported (Cheseldine & McConkey, 1979; Girolametto, 1988; Holdgrafer et al., 1989; Lombardino & Mangan, 1983; Mahoney & Powell, 1988; Mash & Terdal, 1973; McConkey & O'Connor, 1982; Price, 1984; Seitz & Hoekenga, 1974; Seitz & Riedell, 1974). Specifically, investigators have noted that favorable outcomes of their parent training regimes have included behavioral changes such as increased parental responsiveness and/or decreased directiveness (Cheseldine & McConkey, 1979; Girolametto, 1988; Holdgrafer et al., 1989; Iven et al., 1989; Mahoney & Powell, 1988; Mash & Terdal, 1973; McConkey & O'Connor, 1982; Price, 1984; Seitz & Hoekenga, 1974; Seitz & Riedell, 1974; Tiegerman & Siperstein, 1984; Weistuch & Lewis, 1985), more equally balanced turn-taking (Girolametto, 1988; Mahoney & Powell, 1988; McConkey & O'Connor, 1982; Tiegerman & Siperstein, 1984), and less use of questions and mands (Cheseldine & McConkey, 1979; Girolametto, 1988; Iven et al., 1989; Mahoney & Powell, 1988; McConkey & O'Connor, 1982; Price, 1984; Seitz & Hoekenga, 1974). Concomitantly, reported changes in child language behaviors have included increased MLU (Price, 1984; Seitz & Hoekenga, 1974), increased use of two-word phrases (McConkey & O'Connor, 1982), and increased lexicon (Cheseldine & McConkey, 1979; Girolametto, 1988; Holdgrafer et al., 1989; McConkey & O'Connor, 1982). Improvements in children's use of social-conversational skills such as topic initiation and turntaking have also been reported (Girolametto, 1988). Clearly, professionals can effectively train parents to promote early language learning. Following are summaries of two such studies that made use of very different approaches in their parent training regimes.

Girolametto (1988) compared the pre- and post-test videotapes of a group of nine mother-child dyads involved in an 11-week social-conversational parent intervention program with those of 11 control group dyads. The treatment program used was the Hanen Early Language Parent Program (Manolson, 1985). All children involved in the study were developmentally delayed and presented with diagnoses such as Down syndrome, cerebral palsy, chromosomal abnormalities, and one unknown etiology. Developmental levels ranged from 6 to 32 months, as assessed on a standardized developmental scale. No significant differences in the composition of the two groups were found at pretest for maternal factors such as age or years of education; nor for children's age, sex, language level, or developmental level. Pre- and post-test videotapes were transcribed and coded for measures of turn taking, as well as indexes of responsiveness, topic control, and uninvolvement. The coding scheme utilized was an adaptation of a system developed by Rocissano and Yatchmink (1983). All turns and missed turn opportunities were examined to determine the state of joint attention between mother and child. Turns taken were coded as continuations or as redirections, whereas missed turn opportunities were coded as gaze, ignore, or uncodable.

Following treatment, the mothers in the experimental group were found to be more responsive on both silent and verbal measures of contingent responsiveness, and less controlling in interactions with their children than the mothers in the control group. Their children also initiated more topics, were more responsive to their mother's statements, and used more verbal turns

and a larger lexicon in comparison to the control group. As in the current study, this study was concerned with teaching parents how to make use of joint attentional strategies with their language delayed children.

An innovative home-based parent training program was implemented by Cheseldine and McConkey (1979), in which they provided parents with a language objective to work towards with their children but no instructions as to how to attain this objective. Seven Down syndrome children at the single word to two-word stage of expressive language development and their parents took part in the study. At pre-test the children used at least 20 clear words and had MLU's of between 1.0-1.89 words. The parents were instructed to encourage the use of several target verbs and two-word combinations within specific play contexts. All parents spontaneously altered their language strategies, utilizing a variety of interaction modes.

Following intervention, the children and parents were divided into two groups based on the children's results; the improvers and the non-improvers. The children who improved were observed to use the target words and verbs more often than the non-improvers. No mention was made regarding use of two-word phrases. The parents of the non-improvers were found to make use of a more questioning and directive strategy than the successful group. A second study was therefore conducted. Two of the non-improvers parents were shown how to alter their language strategies to produce an increase in their child's use of target words. This training took the form of a written summary of instructions plus a demonstration of

effective interactional strategies. Discussion and demonstration of these techniques took place during one 30-minute training session. Results indicated that such intervention was effective in increasing the parents' use of facilitative communication strategies and, concomitantly, resulted in increased use of target words by their children.

Obviously, early parent training regimes are effective, and as such, constitute an important aspect of the SLP's role. As Cheseldine and McConkey's (1979) findings attest, even brief parental instruction can effect change in parents' interactive styles with their children. Discussion of the interaction that occurs between the SLP and the parent or the effect of instructional style on parental learning has not, however, typically occurred in the literature. The nature of this interaction could potentially enhance the effectiveness of parent training.

Parent Training and Instructional Style

It has been argued that the relationship between the parents of a handicapped child and the professionals involved in the child's rehabilitation is a critical aspect of the therapeutic process (Cunningham & Davis, 1985; Darling, 1983; Dunst, Trivette, & Deal, 1988; Leigh & Marshall, 1983; Mittler & Mittler, 1983; Rubin & Quinn-Curran, 1983). Blumberg (1980) stated that the product most typically associated with the supervisory process in the schools is improved quality of instruction in the classroom. Likewise, one would expect that the product associated with the quality of the

parent-professional relationship would be improved parent-child interactions.

Various models of parent-professional interaction have been posited in the EI literature. These have included the *expert* or *medical* model (Cunningham & Davis, 1985; Dunst et al., 1988; Rubin & Quinn-Curran, 1983), the *transplant* model, and the *consumer* or *collaborative* model (Cunningham & Davis, 1985).

Within both the medical and transplant models, the professional is considered to be the expert on the child. Although in the transplant model the professional recognizes the value of the parent as a resource, the professional still maintains control over decision making and goal setting. By contrast, according to a consumer or collaborative model of interaction the professional views the parent as a consumer of a service. The professional's role is that of consultant or instructor within the context of a mutually respectful relationship (Cunningham & Davis, 1985). Dunst and his co-workers (1988) have suggested that while various interactive models all have a place within helping relationships, those placing an emphasis on collaboration and empowerment may allow parents and families to become more competent and capable:

> To the extent that interventions promote behavior change and a sense of self-efficacy, the help seeker is more likely to attribute responsibility for maintaining change to him or herself, and the success of the intervention should be enhanced considerably. The major consequences of this helping model include increased competence and well-being and enhancement of coping abilities. (p. 42)

Conversely, those help-giving models in which the professional assumes relative control over the help-seeker's fate have been found to foster dependencies and a sense of indebtedness, as well as convey the message that the help-seeker (i.e. client) is somehow inferior, incompetent, or inadequate (Dunst et al., 1988).

These definitions of interpersonal frameworks utilized by rehabilitation professionals are descriptive in nature. While traditional expert and transplant models have been effective in improving parent-child interactions, the relative effectiveness of these models compared with more progressive collaborative approaches to intervention has not been examined. Indeed, within the speech and language domain, empirical research examining the utility of various instructional styles with parents has only recently been reported. Johnson (1989) questioned traditional parent training methods such as didactic instruction and modeling, on the grounds that they could be labelled as socially 'intrusive'. The author's argument was that such instructional methods directly intrude on the family's interaction pattern. As an alternative, Johnson posited use of self-rating techniques by parents to change and maintain interactions with their children. Basically, self-rating involves the use of self-evaluation of behavior in the absence of external reinforcement. The results of Johnson's pilot study (1989), using self-rating with low-income mothers whose children had normal communicative skills, indicated that mothers' use of directive behaviors decreased significantly in those instances where the mother initially evidenced a high rate of directive behavior. Johnson & Harrison (1990) then examined whether maternal self-rating of

interactions would decrease the percentage of directive behaviors used by the mothers during play with their language-impaired children. Each of eight mother-child dyads were initially videotaped playing together for 10 minutes, which provided a baseline measure of maternal directive and nondirective behaviors. Those mothers with directive behaviors totalling more than 30% of their combined behaviors were eligible to continue in the study, resulting in a total of four dyad participants. Mothers ranged in age from 28 to 46 years, all possessing some education beyond the high school level. The children ranged in age from 2-5 to 4-9 years; the extent of their language delays ranged from 9 to 12 months. Three of the children were reportedly enrolled in language therapy. It was not reported whether mothers had received any prior parent training. During each of three intervention sessions, mothers were instructed to play with their children as if they were at home. The experimenters videotaped 8-10 minutes of their interaction. The mothers were then asked to view the mid-5-minute portion of these tapes. They were then asked to rate aspects of their interaction with their children using the parental self-rating scale developed by Johnson (1989). Following the self-rating, mothers were asked to play with their children for an additional 7 minutes.

Analysis of the middle 5 minutes of the first portion of each session (pre-intervention tape) and the first five minutes of the second portion of each session (post-intervention tape) revealed that the overall effect of intervention (i.e., viewing the videotape and using the maternal self-rating scale) was a decrease in directiveness. In terms of the effect on children's communicative skills, the results

were somewhat more equivocal. Two of the children showed an increase in the use of communicative acts (i.e., intentional communicative gestures, vocalizations, and verbalizations), whereas one showed no increase, and one exhibited a decrease. Due to the small number of subjects involved in the study, it was not possible to draw any conclusions regarding the effectiveness of the treatment. As mentioned earlier, it was not clear whether these mothers had ever received parent training prior to their involvement in the study. Mother interactions with SLP's during their children's language therapy sessions were also not controlled for. Nevertheless, given Johnson and Harrison's findings, continued investigation into the merits of self-rating intervention techniques and other styles of non-directive instruction is warranted.

Support from other related research literature, particularly clinical supervision, is also available. Clinical supervision parallels the parent training process in that the professional is providing another adult with guidance in interacting with a child with a communication disorder. Moreover, that literature is a resource for the design of the two treatments used in this study.

Interactions in Clinical Supervision and the Parent-Professional Relationship

Investigators of clinical supervision in speech-language pathology have also begun to examine instructional styles in the supervisor-supervisee relationship and their effect on supervisee performance. Of particular interest has been the differentiation and use of *direct* and *indirect* behaviors in the supervisory process.

Briefly, a directive style parallels the expert mode of interaction. It has been considered representative of the most common style of supervision (Webster & Hagler, 1989). It is used when there is an assumption that the supervisor has greater knowledge and expertise about the issue at hand (Glickman, 1985). The supervisor dominates the interaction and engages in a high proportion of talking, which includes giving information, opinions, suggestions, and criticisms (Brasseur & Anderson, 1983). By contrast, in an indirect or nondirective style the role of the supervisor is to assist the teacher or student in the process of thinking through their actions. Supervisors do not interject their own ideas into the discussion, but act as facilitators, allowing supervisees to arrive at their own decisions (Glickman, 1985). An indirect supervisory approach parallels a collaborative problem solving style. The supervisor actively listens to the supervisee, asks questions, accepts or uses the supervisee's ideas, and reflects or summarizes the supervisee's feelings and ideas (Brasseur & Anderson, 1983).

Smith and Anderson (1982a) developed the *Individual Supervisory Conference Rating Scale* (ISCRS) to evaluate supervisory conferences in speech-language pathology. Using this rating scale in combination with another (see Weller, 1971) they discovered that direct and indirect behaviors were consistent indicators of perceived effectiveness by supervisor-supervisee pairs and trained raters (Smith & Anderson, 1982b).

Brasseur and Anderson (1983) used a modified version of the ISCRS to determine whether speech-language pathology supervisors,

graduate student clinicians, and undergraduate students could distinguish between direct and indirect and between direct and a combination of direct/indirect supervisory styles during videotaped conferences. Factor analysis results indicated that 14 of 18 items on the ISCRS could be used reliably to assess direct and indirect supervisory behaviors. They also found that it may be difficult to distinguish indirect from direct/indirect supervisory styles. Given that it is possible to reliably differentiate between direct and indirect supervisory styles, the authors concluded that assumptions regarding the effects of these supervisory approaches might finally be validated in the literature.

Subsequent to Brasseur and Anderson's (1983) findings, Webster and Hagler (1989) evaluated the effects of a direct as opposed to a more indirect approach to providing feedback to students in a supervisory conference setting. As they stated, supervisors are often caught in a dilemma where, although they feel it may be necessary to provide specific directive feedback regarding some aspect of student performance, they also feel it may be important to give the student an opportunity to problem-solve independently.

Specifically, Webster and Hagler were interested in determining whether either form of supervisory input effected a change in student clinicians' use of verbal consequation with their clients in treatment sessions. They were also interested in whether, over time, there was any difference between the two approaches in terms of the effect on student clinicians' behavior. Additionally, they investigated whether methods of feedback regarding performance

with a primary client generalized to a second client. Two A-B-A single-subject withdrawal designs, both replicated with a second student subject were utilized in the study. Use of the Directive-Specific (D-S) style involved written and post-session verbal feedback over four consecutive sessions that directed the student to increase the frequency of verbal consequation for client responses during articulation therapy. Use of the indirect, Progressive-Specific (P-S) interactive style involved intervening initially with general guidance, observing the student behavior for effective problem solving, and gradually providing more specific and concrete instruction, so that directive-specific feedback became the last step in the P-S sequence.

Results indicated that both forms of supervisor feedback effected increases in student clinicians' consequation rates. No difference between the two feedback styles in bringing about this consequation rate change was evident. Feedback pertaining to a subject's primary client did not appear to effect change in consequation rates with generalization clients. Students also indicated that they were more comfortable with the D-S feedback approach.

Webster and Hagler acknowledged that issues such as design constraints, limited inferences from visual inspection of the data, and students' subjective responses to treatment conditions may all have influenced the results obtained. Nonetheless, they attempted to examine an area in which little is known in the supervision field. It is possible that a larger sample might have altered the results obtained. Further, since students are typically trained in a model

where the teacher is viewed as the expert and the student as subordinate, it is hardly surprising that they preferred a directive supervisory approach. Another subject population, such as parents, might prefer a different interactive approach, potentially influencing the results.

Parent-professional interactions have typically been described with regards to the amount of control each member of the dyad holds over the therapeutic process (i.e., *expert* implying domination by the professional, *collaborative* implying equality between parent and therapist). Within individual parent-clinician interchanges, just as in the supervisory process, it is possible to examine the effect of variations in the amount of control each person possesses over the interaction by altering the professional's use of direct and indirect instructional styles.

The reason for modifying parent or student clinician behavior is that, ultimately, positive influences will be observed in the child's communicative behavior (Fey, 1986; Hagler & Holdgrafer, 1987). The final section of this review briefly addresses this ultimate outcome.

Effects of Improved Mother-Child Interaction on Child Communicative Performance

Attempts by the professional to make "direct and specific" changes in a child's communicative ability are referred to as first order change (Fey, 1986, p. 191). The focus of the current research is referred to as second order change (Fey, 1986). Second order change is the modification of the mother-child relationship to one in which the child is viewed as an equal. By doing so, positive changes

in the child's language development are expected and, in fact, have been reported in the literature previously reviewed.

It was considered important in the current study to monitor changes in child communicative behavior when mothers were less directive in verbal interaction with their children. A number of different outcomes have been used (e.g., MLU, lexicon size, two-word combinations). Four specific outcome measures were selected as most appropriate for this study. These were quantity of verbalization, child conversational role (Lead or Follow), complexity and intelligibility of verbalizations. Commonly used measures such as MLU, lexicon size, and word combinations were eliminated given the verbal status of the subjects (primarily single words).

Quantity of child verbalizations was considered to be an appropriate measure because reduced verbal output has been observed in developmentally delayed children (Warren & Kaiser, 1986). An increase in maternal responsiveness should result in more opportunities for a child to verbalize. Child conversational role should also be effected as mothers shift from Lead to Follow role in the conversational interaction. Specifically, use of the Mother Follow strategy **requires** the child to initiate and lead social interaction. A Mother Lead strategy will very likely promote a Child Follow role where the child is responsive but seldom initiates conversational exchanges (Fey, 1986). This characteristic has been observed in language-impaired children (Demaio, 1984). Complexity and intelligibility are two conventional, routine measures of communicative performance in children with communication disorders (Miller, 1981; Shriberg & Kwiatkowski, 1982) and it was of

interest to see if they varied systematically as a function of context (in response to ML vs. MF utterances). Context has been demonstrated to be a factor accounting for variability in communicative behavior (Lund & Duchan, 1988). Children might exhibit greater complexity and intelligibility in verbal output when not constrained by maternal directiveness. In a related study, Campbell and Shriberg (1982) reported improved speech sound production in contexts where the child introduced new information into the conversational exchange. This parallels the Child Lead role in initiating and maintaining social interaction. Measures of complexity and intelligibility were adapted from the literature (Wetherby, Cain, Yonclas, & Walker, 1988; Wetherby, Yonclas, & Bryan, 1989) as appropriate to children at the single word level.

The research described in the following chapters examines the effects of two distinct instructional styles on mothers' ability to implement changes in verbal interactions with their children. The ensuing effects on children's linguistic output are also explored.

CHAPTER 3

Rationale and Experimental Questions

Early parent-child interactions have been found to significantly influence children's socio-linguistic development. Investigators have noted that mothers of language-normal children have typically made use of fewer directive, controlling utterances and provided more positive feedback to their youngsters than mothers of language-impaired children. Additional features of adult speech found to exert a positive influence on the language learning process have included following the child's attentional focus and semantic and syntactic simplification of utterances.

Over the past two decades, parental involvement in early speech and language training programs has been promoted. Generally, parent training has positively effected change in parents' interactive patterns with their developmentally delayed and language-impaired children. Concomitant improvements in children's interactive and linguistic abilities have also been reported.

Little attention has been paid to the interaction that occurs between the SLP and the parent, or to the effect of instructional style on parental learning. Descriptions of interpersonal frameworks utilized by rehabilitation professionals were provided in the EI literature, however comparisons of the relative effectiveness of expert, transplant, and collaborative models of interaction have not been undertaken. Only recently have speech-language professionals begun to examine the utility of various instructional styles in the parent training arena.

Researchers in the field of clinical supervision in speech-language pathology have examined the instructional styles used by supervisors with student clinicians. They have differentiated between directive and indirect supervisor behaviors: the former indicative of supervisor control or expertise, the latter representative of a more collaborative approach to problem solving. Preliminary investigations into the effectiveness of directive and indirect forms of supervisor feedback on student clinician behavior have failed to demonstrate significant differences between the two feedback modes. Replication of such studies with larger sized samples and various subject populations would, therefore, appear to be a logical and necessary outcome.

Accordingly, the primary purpose of this investigation was to determine the relative effectiveness of "professional as facilitator" and "professional as expert" instructional styles in training mothers to verbally follow the attentional focus of their language-impaired preschoolers during play activities. Following the child's lead continues to be reported as an effective language teaching procedure (Yoder, Kaiser, Alpert, & Fischer, 1991).

The *independent variable* was the instructional style utilized by the SLP with each mother during discussions of standard videotaped segments of mother-child interaction. These segments illustrated either MF or ML interactions.

A *directive* instructional style, as stated in the literature, is characterized by one party (e.g., teacher, supervisor, or clinician) dominating the interaction and engaging in a high proportion of talking, including giving information, opinions, suggestions, and

criticisms (Blumberg, 1980; Brasseur & Anderson, 1983; Glickman, 1985). Accordingly, a declarative sentence mode was used during directive interactions in order to identify for mothers the examples of MF/ML on the video segments, and to tell mothers how these examples might differentially affect language development.

Within a *non-directive* interaction, the professional assists the mother in the process of thinking through her actions and arriving at her own solutions (Blumberg, 1980; Glickman, 1985). According to Brasseur and Anderson (1983) the supervisor (i.e., investigator) actively listens to the supervisee (i.e., mother), asks questions, accepts or uses the supervisee's ideas, and reflects or summarizes her feelings and ideas. Accordingly, an interrogative sentence mode was used during non-directive interactions, in order to assist the mothers in identifying the examples of MF/ML utterances and in evaluating the differential impact on language development. Identical information was provided to the mothers in the two conditions, however in the directive group the experimenter **told** the mother this information, and in the non-directive group the experimenter attempted to **elicit** the information from the mother. Refer to Appendix G for a detailed description of directive/non-directive instructional styles.

The *dependent variable* was the percentage of Mother-Follow verbal behaviors (of the total number of MF/ML utterances) used by each mother with her own child during a 10-minute pre- and post-intervention videotaped segment of mother-child interaction.

Mother Follow (MF) verbal behaviors acknowledge, comment, or elaborate on the child's preceding activity or verbalization

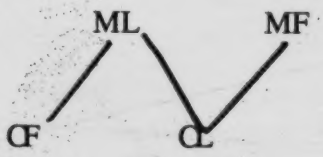
(Girolametto, 1988). For example, the child might push a car and the mother would say, "Push the car", or the child would say "Ball" and the mother would say, "Yes, that's a big ball". *Mother Lead* (ML) verbal behaviors switch the focus of the child's preceding activity or verbalization, or maintain the focus on a previous topic when the child is no longer interested. For example, the child might be pushing a car or saying "car" while his mother says, "Look at the baby". The child might also stop playing with one toy to play with another, but the mother persists at drawing the child's attention to the first toy. Refer to Appendix F for a detailed outline of MF and ML response definitions. MF and ML utterances were expressed as percentages of total maternal verbal output.

The secondary purpose of this investigation was to determine the effects of MF and ML statements on children's linguistic output. Given the documented beneficial effects of following the child's attentional focus on language development, it was expected that children would perform better across 4 different measures when their utterances were made in response to MF statements. The data were collapsed across both variables (i.e., group/time) in order to increase the database for addressing this general issue. The four child language measures were:

1) Quantity of verbal output. The number of MF and ML utterances were each totalled for each mother. The separate MF and ML totals were divided into the number of times a child verbalized in response to each one. For example, a mother might have 30 MF and 50 ML utterances. The child may have verbalized 20 times in response to MF utterances and 25 times in response to

ML utterances, yielding respectively 66.6% and 50% as indicators of verbal output.

2) Conversational role. *Child Follow* (CF) utterances maintain the focus or topic of the preceding utterance. They can only be made in response to ML utterances. *Child Lead* (CL) utterances change the focus or topic of the preceding utterance. This could include a minor or major shift (e.g., see p.87) in attention (Rocissano & Yatchmink, 1983). CL can also occur subsequent to ML utterances, where both the child and mother are attempting to lead the conversation. MF only allows CL utterances, and as noted previously, is a strategy that promotes initiation and maintenance of interaction by the child. Conversely, ML provides a context in which the child, unless conversationally assertive (Fey, 1986), is likely to become primarily conversationally responsive (Fey, 1986). The conversational contingency relationships are illustrated in the schemata below:



CL utterances will follow MF utterances 100% of the time. Percentages of CF and CL utterances subsequent to ML utterances were determined by dividing the combined CF/CL total into the separate CF and CL totals.

3) Intelligibility of verbal output. Childrens' utterances were coded as either intelligible or unintelligible (partially intelligible utterances were so rare that they were coded as unintelligible). *Intelligible* utterances were recognizable as approximations of

conventional adult forms (Holdgrafer & Dunst, 1986). All other utterances were coded as *unintelligible*. All contextual cues (e.g., toys, mothers' attempts at interpretation) were considered in the coding and replays were routine. Weighted scores were given to each category of utterances (Intelligible: 2; Unintelligible: 1). A child's intelligibility score for utterances subsequent to MF or ML utterance contexts was determined by summing the weighted scores and dividing by the total number of child utterances in each context. A separate tally of conventional vocalizations (i.e., oh, hey, uh-huh, animal sounds, and vehicle sounds) was kept but it was of low frequency and not included in the analyses.

4) Complexity of verbal output. Child utterances were coded according to complexity of syllable shape, given that all subjects were primarily at a single word level. Syllables can contain consonants and vowels, or vowels only, and can be mono or multi-syllabic (Wetherby, Cain, Yonclas, & Walker, 1988). This results in four categories of utterances receiving weighted scores from 1 to 4, reflecting increasingly greater syllabic complexity. The scoring system is provided below:

Score	Category	Code
1	minus consonant minus multi-syllabic	-C-M
2	minus consonant plus multi-syllabic	-C+M
3	plus consonant minus multi-syllabic	+C-M
4	plus consonant plus multi-syllabic	+C+M

Each child utterance was coded and assigned a weighted score. A child's complexity score for utterances subsequent to MF or ML utterance contexts was determined by summing the weighted scores and dividing by the total number of child utterances in each context.

Specifically, six experimental questions were posed. The primary experimental question was as follows:

1) Will a significant difference exist between mothers in the directive and non-directive instructional groups with respect to the percentage of MF utterances used in pre- and post-intervention videotaped samples of mother-child interaction?

The five remaining questions dealt with the child language measures. They are listed below.

2) Will children exhibit a significantly greater quantity of verbal output in response to MF statements than ML statements across groups and pre- to post-testing?

3) Will children exhibit a significantly greater percentage of CF utterances than CL utterances in response to ML utterances across groups and pre- to post-testing? As stated earlier, the child's response to MF is to lead the conversation. This question addresses the nature of the child's role in the conversation when the mother is attempting to lead. Does the child now primarily follow or attempt to take the lead from her?

4) Will children exhibit a significantly higher intelligibility score for utterances made in response to MF utterances than ML utterances across groups and pre- to post-testing?

5) Will children exhibit a significantly higher complexity score for utterances made in response to MF utterances than ML utterances across groups and pre- to post-testing?

Question 6, below, is a logical extension of questions 4 and 5. Intelligibility and complexity scores were further broken down according to child conversational role subsequent to ML (CF, CL) and compared to CL following ML.

6) Are there significant differences in intelligibility and complexity as a function of the child's conversational role and the preceding maternal utterance (CF, CL following MF, and CL following ML)?

In summary, this study includes an experimental component (question 1) and a descriptive component (questions 2-6). The descriptive component provides data to confirm the potential importance of the technique taught to mothers in the experimental component.

CHAPTER 4

Methodology

Subjects

Mother-child dyads were recruited through the Edmonton Board of Health (EBH), Speech and Language Services Division, in Edmonton, and the Alberta Children's Hospital (ACH), Speech-Language Pathology Department, in Calgary. To be eligible to participate in the study, each dyad was required to meet the following criteria:

Child factors.

(a) speech and language to be the primary presenting concern,

(b) minimum six months expressive language delay, as assessed via a standardized language measure[2]. Normal or delayed receptive language skills are acceptable, however receptive delays must not exceed expressive delays,

(c) maximum chronological age of 3 years, 6 months,

(d) normal auditory acuity,

(e) no prior speech-language treatment,

(f) mono-lingual English speakers only.

Items (a) through (c) were included so as to eliminate children with severe delays from participating in the study.

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[2]Standard language measures that were utilized included the Bzoch-League Receptive-Expressive Emergent Language Scale (REEL) (Bzoch & League, 1971) or the Sequenced Inventory of Communication Development-Revised (SICD-R) (Hedrick, Prather, & Tobin, 1984).

Mother factors.

(a) minimum grade 10 education,

(b) no prior involvement in any parent instruction program dealing with language development and/or language facilitation techniques,

(c) mono-lingual English speakers only.

Children involved in the investigation were either screened or assessed by a clinical SLP and referred to the principal investigator as potential subjects, based on the criteria outlined above. In instances where it was not possible for the referring SLP to complete a standardized language assessment, the principal investigator assumed this task. Mothers of children felt to be appropriate to participate were informed by the intake SLP regarding the nature of the study and were provided with a brief written description of the project (Appendix A). If interested in participating they were then asked to sign a consent form (Appendix B) allowing the principal investigator to contact them with further details.

Once mothers agreed to participate in the project, they were required to sign another formal consent (Appendix B). They were then requested to complete a one page demographic information form (Appendix C) which was used to compute socioeconomic status (SES), according to a protocol outlined by Blishen, Carroll, & Moore (1987). Hearing screenings were completed on all child subjects who did not have recent audiological test results available. All subjects were primarily at the single word stage of language development. The proportion of single word to multiple word verbalizations was

calculated from the mid-10-minute portion of each child's pre-intervention videotape as a general measure of expressive language status.

A listing of each child's chronological age, receptive and expressive language scores, and proportion of single word utterances used during the pre-intervention videotape is provided in Table 1. Mothers' educational levels and dyad SES intervals are provided in Table 2.

Originally, twenty mother-child dyads were to be recruited to participate in this study. Unfortunately, due to limited availability of subjects and time constraints, this was not possible. Seventeen mother-child dyads consented to participate in the study, however two dyads did not complete the project as it became evident during the first intervention session that behavior, and not language, was the overriding parental concern. The principal investigator attempted to follow the intervention scripts (Appendix G) with each of these mothers, however they chose to discuss behavioral concerns instead. The additional dyad had to be excluded from the study due to inaudible videotapes. A total of fourteen mother-child dyads therefore participated in the study; seven of whom received a directive instructional approach, and seven of whom received a non-directive training approach.

Subjects were assigned to one of two experimental groups according to a stratified randomization procedure outlined by Pocock (1983), in which the male: female ratio across groups was kept proportionate. Expressive language delays ranged from 7 to 19 months in the directive instructional group (M=11.4 months), and

from 6 to 20 months in the non-directive group (M=12.9 months). Six of the seven children in the directive experimental group had receptive language abilities at or above their chronological age level, as did five of the seven children in the non-directive experimental group. A total of three children presented with receptive language delays, ranging from 4 to 8 months. Of those child utterances that were judged to be recognizable, conventional adult forms, the proportion of single word to multiple word productions ranged from 85 to 100% for children in the directive group, and 51 to 100% for children in the non-directive group. It is possible that many of the multi-word utterances were unanalyzed units and not reflective of grammatical development. It should also be noted that only one of seven children in the non-directive experimental group presented with less than 75% single-word productions.

SES for each mother-child dyad was calculated according to a protocol outlined by Blishen et al. (1987). Within this scheme, a numerically rank ordered index value is assigned to each occupation; the values having been calculated based on a composite of income level and educational status, and calibrated according to prestige scores. Class intervals were then assigned to various groupings of index scores, with 1 representing the lowest index scores and 6 representing the highest (Blishen & McRoberts, 1976). SES scores for the fourteen mother-child dyads involved in this study ranged from 1 to 6. In instances where both parents were employed, the highest index value of the two was used to calculate SES.

Settings

In Edmonton, the video equipment used during pre- and post-testing sessions was situated in an observation room adjoining a large play therapy room in the Department of Speech Pathology and Audiology at the University of Alberta. Accordingly, mother-child interactions were videotaped through a one way mirror. In Calgary, a therapy room with adjoining observation suite was not available, therefore the video equipment was placed in the therapy room in the Speech-Language and Hearing Department at the Alberta Children's Hospital and was visible to both mother and child.

Materials/Equipment

The laboratory at the University of Alberta was equipped with the following equipment: (a) video camera-JVC model GX-5700U, (b) video cassette recorder-JVC model BR 3000U, (c) television monitor-Panasonic model PC-20L13, (d) PX-18 PZM microphone and transformer power supply, (e) time/date generator-Peles model TDG200DT, and (f) portable audiometer-Maico MA40. The laboratory at the Alberta Children's Hospital was equipped with: (a) integrated video camera and recorder-Hitachi model VM2200A, and (b) trinitron color video monitor-Sony model PVM-8020. The remaining items were utilized in both locations: (a) Polaroid T120 VHS professional video cassettes, and (b) a standard set of toys used during mother-child interaction sessions (Appendix D). The toys selected for use in this study were similar to those used in other studies of mother-child interaction (Larsen, 1988). They were also similar to those used in the two intervention session demonstration

video tapes available from another study (Holdgrafer & Dunst, 1990). Prior to the commencement of the current study, the principal investigator reviewed several of these videotapes for both positive and negative examples of mother-child joint attentional focus. A total of sixteen examples of mother-child interaction (eight for each intervention session), ranging from 6 seconds to 2 minutes in length were selected from the videotapes of two mother-child dyads. Four of the eight vignettes presented in the first intervention session were illustrative of MF behavior. The remaining four vignettes were illustrative of ML behavior. In the second intervention session, five of the vignettes depicted MF behavior, and three depicted ML scenarios. Their appropriateness for the current investigation was tested during the pilot study.

Procedures

The procedures described below were designed and tested during the course of a pilot study (Appendix E).

Pre and post-testing. Twenty-minute videotaped samples of mother-child interaction during naturalistic play activities in the clinic were obtained pre- and post-intervention for each mother-child dyad. A standard set of toys was provided and each mother was instructed to play with her child as she normally would in the home. The toys were located in a cardboard box that had been placed on a white sheet in the therapy room prior to mother and child making their entrance. Both mother and child had equal access to this box. Mothers were instructed to stay on the white sheet and to direct their children to do so while videotaping was in progress.

Intervention. Equal numbers of subjects were randomly assigned to one of two experimental training groups: (a) directive (expert) or (b) non-directive (facilitative). Refer to Appendix G for an outline of these intervention conditions. Each mother was involved in two individual parent training sessions, each lasting for approximately 30-35 minutes. A 3-minute explanation outlining the intent of these sessions was provided for each mother (see Appendix G). The mothers then viewed a 2-minute segment of a videotape of another mother interacting with her toddler. The purpose of this "warm-up" segment was to introduce the mothers to the type of videotaped vignettes they would be viewing and discussing with the experimenter. All mothers viewed the same segment. The experimenter then proceeded with the sequence of video vignettes described earlier, using one of the two instructional styles.

Parent survey. Immediately following completion of the post-intervention videotape, mothers were asked to complete a brief parent rating survey form concerned with the instructional process. Items had been adapted from the Individual Supervisory Conference Rating Scale (Smith & Anderson, 1982a) and were intended to differentiate between those mothers who received a directive and a non-directive instructional style (as mentioned previously, Brasseur & Anderson (1983) found that 14 of 18 items on this survey reliably assessed direct and indirect supervisory behaviors). Inspection of forms completed by the first five participants in the study failed to identify any differences in responding by the two groups of mothers. Several mothers appeared to have rated each of the items with the same score. Given the lack of sensitivity of this modified instrument

in differentiating between the two instructional styles, and the apparent inappropriate responding by the mothers, administration of the survey form was discontinued. It is also possible that the mothers did not perceive the two experimental styles in the manner which the experimenter defined them.

Coding system. The mid-10 minute portion of each mother's pre- and post-intervention tape was analyzed to determine mothers' ability to follow the attentional focus of their language-impaired children. The use of the mid-10 minute portion of interaction for coding purposes is consistent with procedures utilized by other investigators working in the mother-child interaction domain (Girolametto, 1988).

Mothers' utterances were transcribed and coded as representative of either MF or ML behavior. Children's utterances were transcribed and coded along the dimensions of CF/CL, intelligible or unintelligible, and plus or minus consonant, plus or minus multi-syllabic (refer to Appendix F for an outline of response definitions).

Reliability

A measure of procedural reliability was obtained during the pilot study (refer to Appendix E).

Procedural reliability was maintained throughout the main study by following prepared scripts for each of the two conditions (refer to Appendix G). Inter-judge point-to-point reliability measurements were calculated on 20% of subject tapes, coded according to the scheme described in Appendix F. Prior to completing these reliability measurements, an independent rater was

trained in the use of the coding scheme by the principal investigator. A minimum 85% agreement in the scoring of three-5-minute training tapes was obtained. The mean reliability for each measure coded on the subject tapes was as follows: (a) Mother utterances- 83%, (b) Child conversational role- 82%, (c) Intelligibility of child utterances- 68%, (d) Complexity of child utterances-86%.

As can be seen, low inter-rater reliability was obtained for the intelligibility measure. It appeared that the principal investigator was more stringent than the reliability rater in making these judgements. Hence, fewer child utterances were rated as intelligible, recognizable words by the principal investigator.

CHAPTER 5

Results

A computerized statistical program developed by Feldman, Hofmann, Gagnon, and Simpson, StatView + Graphics (1988), was used to perform the analyses required to answer the primary and secondary experimental questions presented below. Descriptive statistics for all analyses are provided in Tables 3 and 5-10 (pages 60, 61-63).

The primary purpose of this study was to determine if there would be a differential effect of two professional-parent interactional styles on mothers' use of a specific language teaching technique called following the child's attentional focus. The specific experimental question was:

1) Will a significant difference exist between mothers in the directive and non-directive instructional groups with respect to the percentage of MF utterances used in pre- and post-intervention videotaped samples of mother-child interaction?

The data were analyzed using a 2x2 two-factor mixed experimental design (i.e., ANOVA) (Bruning & Kintz, 1987). Instructional Style (Directive vs. Non-directive) constituted the between-groups factor, and Time (Pre- and Post-intervention measurements) constituted the within-group factor. The percentage of MF utterances was the dependent measure. A significant main effect was found for Time, F (1, 12)=14.813, p=.0023, but not for Instructional Style, F (1, 12)=.11, p=.7463. Hence, both groups of mothers significantly improved in

their ability to follow the attentional focus of their language-impaired children. An interaction between factors was not observed.

As noted in Table 4, five of seven mothers in the directive group increased their use of MF verbal behaviors from pre- to post-intervention by 22.3 to 52.8%. Similarly, four of seven mothers in the non-directive group increased MF behaviors from 23.3 to 52.9%. The remaining two mothers in the directive instructional group also improved their MF scores, but by less than 10%. One mother in the non-directive instructional group improved her score by 8.1 %. The other two mothers' MF scores decreased. Mothers whose scores decreased or who made the least gains were also the mothers who presented with the highest pre-intervention MF scores (i.e., 50% MF utterances or greater). Given the brief amount of intervention provided, the improvements made by the majority of mothers in both groups could be viewed as clinically significant.

The secondary purpose of this study was to determine the impact of MF and ML utterances on the verbal behavior of the children. Each specific question and accompanying data analysis are presented below. A within-subjects, matched-groups design (paired t-test) (Bruning & Kintz, 1987) was used to analyze the data for questions 2-5.

2) Will children exhibit a significantly greater quantity of verbal output in response to MF statements than ML statements across groups and pre- to post-testing?

A significant difference was found for the percentage of child utterances spoken in response to MF ($M = .592$) and ML ($M = .521$)

verbalizations, t (13)=1.911, 1 tailed p =.0391. As expected, a greater quantity of child verbal output was evident in the MF condition.

3) Will children exhibit a significantly greater percentage of CF utterances than CL utterances in response to ML utterances across groups and pre- to post-testing?

Children were found to make use of a higher percentage of CF (M =.595) than CL (M=.405) utterances in this condition, t (13)= -2.897, 1- tailed p = .0063. A paired t -test comparing the **total number** of CF and CL utterances in the ML condition also indicated a significant difference, t (13)= 3.145, 1 tailed p = .0039 (M CF= 59.54; M CL=40.46). When a mother was leading, the child tended to follow her, rather than to attempt to take the lead.

In total, nine children exhibited the group effect. Four children's CF and CL scores were essentially equivalent, not exceeding a 6 % difference. The remaining child presented with a CF score that was lower than his CL score (31 and 69% respectively). On examination of the raw data, it appeared that, rather than follow his mother, this child frequently changed topic in response to ML statements.

4) Will children exhibit a significantly higher intelligibility score for utterances made in response to MF utterances than ML utterances across groups and pre- to post-testing?

No significant difference was found regarding intelligibility of child utterances under the MF (M=1.563) and ML (M=1.556) verbal conditions, t (13) = .228, 1-tail p = .4115.

5) Will children exhibit a significantly higher complexity score for utterances made in response to MF utterances than ML utterances across groups and pre- to post-testing?

No significant difference existed under the conditions of MF and ML verbal behaviors with respect to complexity of child utterances, t (13) = 1.232, 1-tail p = .1198(M MF= 2.961; M ML= 2.887).

6) Are there significant differences in intelligibility and complexity as a function of the child's conversational role and the preceding maternal utterance (CF, CL following MF, and CL following ML)?

Treatments-by-subjects, or repeated-measures designs (one way ANOVA) (Bruning & Kintz, 1987) were used to analyze both the intelligibility and complexity data. There was a significant main effect for child conversational role on intelligibility, F (2,28)=8.638, p=.0013. The Scheffe F-test, was used for post-hoc analysis of the differences among group means. There was a significant difference between intelligibility of child utterances that were CF (M=1.627), as opposed to those that were CL (M=1.457), when made in response to ML utterances, F=8.47, p <.05. No other significant differences between group means were found. There were no significant differences in the complexity of utterances among CL (MF), CL (ML), and CF (ML) conditions, F (2,28)=1.459, 1-tail p=.2508.

CHAPTER 6

Discussion

Effects of Instructional Style on Mothers' Verbal Behavior

Regardless of instructional style, mothers were generally able to significantly improve their ability to follow the attentional focus of their children. This finding is consistent with the parent training literature cited earlier, indicating that parents are able to effectively modify interactions with their children in order to promote early language learning. In keeping with the findings of Cheseldine and McConkey (1979), these results provide support for the notion that instruction may be extremely short in duration and still effect change in parents' interactive styles. Individual subject data support the group results.

While a brief exposure to parent training results in immediate behavior change, it does not, however, address differential effects that might become apparent after a longer term of intervention or longer term follow-up. The feelings of empowerment and competence engendered by a collaborative model may require more extensive interaction and a longer period of time to be manifested. For the purpose of short term results, the SLP could choose either style.

It is important to acknowledge that mothers may differ in their expectations of the professional's role. Typically, within the *medical model* of parent-professional interaction, the professional is considered to be the expert on the child (Cunningham & Davis, 1985; Dunst et al., 1988; Rubin & Quinn-Curran, 1983). Many parents' only

associations with health care professionals have been within such a hierarchical model. Those individuals who have had limited involvement with the health care system may be less aware of the range of service delivery models that are available. Parents may not begin to look for alternative models of interaction until they have met with disappointment. Gradually they take on a more entrepreneurial role in which they seek information and control, and challenge authority. As Webster and Hagler (1989) posited, it may be that individuals with more experience are better equipped to interpret and use the kind of information represented in a non-directive format. In this study, only those mothers who had not received any previous parent training were allowed to participate. Examination of the effects of alternative instructional approaches with mothers possessing various levels of experience in interacting with professionals might have considerably affected the results.

Educational background and/or SES are two additional factors that may have influenced the results of the current investigation. As described under Methodology, SES was computed for each mother-child dyad according to a protocol outlined by Blishen et al. (1987). To summarize, a numerically rank ordered index value was assigned to each parent's occupation. In instances where both parents were employed, the highest index value of the two was used to calculate SES.

Although participants were randomly assigned to the two experimental groups, the mean SES level computed for the non-directive group was 2.7 (along a continuum from 1 to 6), compared to 4.0 for the directive group. Moreover, the majority of mothers in the

directive group had post-secondary education, whereas high school education was typical of the parents in the non-directive group. It seems reasonable to speculate that mothers of higher SES and educational level might feel more competent to engage in the problem solving required in the non-directive approach. It is possible that a directive approach may have depressed their performance.

The effects of physical context or situational variables on mother-child interactions and on child language development have also been discussed in the EI literature (Conti-Ramsden & Friel-Patti, 1987; Gallagher, 1983; Wanska, Pohlman, & Bedrosian, 1989). Specifically, the types of toys available to children have been found to affect the types of conversations that mothers and their children engage in. As the study below suggests, it is possible that in the current study mothers were more or less directive dependent on the type of toy being played with.

Conti-Ramsden and Friel-Patti (1987) examined characteristics of mother-child conversations across *free play* (consisting of play with a set of toys), *no toys* (where mother and child were brought into a room barren of toys), and a *new toy* situation (where children and mothers were presented with a challenging toy). Ten mother-child dyads were involved in the study. Children ranged in age from 2;3 to 2;9 years and were judged to be developing language normally. The interactive sessions in each of the conditions listed above lasted for five minutes. All participants began with the no-toys condition, in which the children waited for an opportunity to

play later. The order of presentation of the other two conditions was counter-balanced.

The investigators discussed the various play situations according to their degree of "scriptedness", from free play (most scripted) to new-toy (least-scripted). Results indicated that children's speech was more complex (i.e., greater MLU) the more scripted the situation. No differences were found in mothers' language complexity across contexts, however mothers' percentage of semantically contingent utterances was significantly smaller in the new-toy, least-scripted context. The authors concluded that the more familiar a situation is, the more likely children are to use what they know linguistically. In a less familiar situation, however, the mothers tended to be more directive and children tended to comply, resulting in less complex child language.

Finally, in terms of individual subject data, it was reported that five of seven mothers in the directive group, and four of seven in the non-directive group increased their use of MF verbal behaviors pre- to post-intervention by more than 20%. As such, a total of nine of the fourteen mothers made changes in their behavior that were judged to be clinically significant. Three of the remaining mothers improved their MF scores by less than 10%, and two mothers' scores decreased pre- to post-intervention (both of these mothers were from the non-directive experimental group). On further examination, it became evident that those mothers whose scores either decreased or improved only marginally, were also the mothers who presented with the highest pre-intervention MF scores (i.e., 50% or higher). This may represent an optimal balance in ML/MF behavior for

normal conversational interaction (Fey, 1986) that once achieved, is resistant to substantial change. Perhaps there is some maximum limit above which behavior change becomes difficult, if not nonsensical, to implement. If this is the case, it is not surprising that mothers whose pre-intervention MF behaviors were above the 50% level would fail to significantly improve their scores following intervention. Indeed, in their 1990 investigation aimed at decreasing maternal directive behavior, Johnson and Harrison refused to allow mothers with a percentage of "non-directive" behaviors greater than 30% of their combined behaviors to participate. In the future, a ceiling level in terms of the amount of MF behavior used by potential participants pre-intervention would appear to be indicated.

Child Language Measures

The greater quantity of child verbalization in response to MF, as opposed to ML statements, is consistent with previous joint attention research. Tomasello and Farrar (1986) found that during periods of joint attentional focus children talked more than when they were conversing outside of a joint attentional episode. The greater the child's output, the more additional opportunities for adults to be responsive to the child's developing communicative efforts (Coggins & Olswang, 1987). This is particularly critical for developmentally delayed children because of reduced communicative output.

The significantly greater number of CF than CL utterances in response to ML utterances supports earlier observations that a

directive style may result in children who are responsive but who do not readily initiate conversation. This further supports the use of MF utterances to facilitate greater conversational assertiveness in these children.

The lack of significant differences in intelligibility and complexity in response to MF versus ML utterances was disappointing given the presumed beneficial effects of MF utterances on child communicative performance. Significantly greater complexity and intelligibility of child utterances did not occur in the context of MF, as compared to ML. A phonological assessment was not completed on the children but it is likely that the complexity and intelligibility of their largely one-word productions were constrained by a phonological delay. As Wetherby, Yonclas, and Bryan (1989) found, a common pattern displayed by children with specific language impairments was deficient proportions of +consonant vocal acts. In addition, mother input was not fine-tuned to facilitate either complexity or intelligibility.

Finally, as mentioned with respect to maternal utterances, situational variables, such as the toys used during interactions, could also have affected the complexity of child utterances. As Conti-Ramsden and Friel-Patti (1987) found, children's utterances were longer when they were engaged in play with familiar toys, rather than when they played with a new, somewhat challenging toy. Although one particular set of toys was used by all of the children in the current study, novelty and/or level of difficulty was not controlled for. Therefore, just as type of toy affected child MLU in

the study cited above, it may also have contributed to reduced linguistic complexity on the part of the children in this study.

Intelligibility was found to differ significantly when child utterances were CF, as opposed to CL, in nature. Contrary to expectation, children were **more** intelligible when they responded to a ML utterance with a CF statement. On closer scrutiny, this finding appeared to make sense. Many of the CF responses to ML statements were either highly intelligible one word yes/no answers or were words that mothers knew were already present in their children's vocabularies. In these instances the mothers prompted their children's use of the words by questioning and, when necessary, by providing imitative models. Consequently, children were typically producing words already familiar to them rather than attempting novel words. Hence, children's productions would necessarily have been more intelligible under the ML condition.

Conclusions

Several themes appear to have emerged out of the current investigation. First, the amount of intervention provided is an important consideration in a study of this nature. Parent training programs are typically a minimum of ten once weekly sessions. A longer term of investigation of instructional styles and the effect on maternal implementation of facilitative language strategies would therefore appear to be warranted.

An additional issue is the interaction of parent characteristics with style. A plethora of individual subject variables (both mother and child) must be considered in research of this kind. Factors such

as mothers' educational backgrounds and SES were discussed earlier. Additional factors such as individual learning styles, level of motivation, and locus of control (Brewer, Tollefson, & Fine 1981) may influence mothers' performance. Indeed, Girolametto (1988) noted that demographic and stress factors may ". . . explain why all parents do not make the same changes following an intervention program" (p. 165). Yoder, Kaiser, and Alpert (1991) examined whether the relative efficacy of two language teaching methods used with handicapped preschoolers could be predicted by pre-treatment subject characteristics. Although no main effects of treatment were found, seven statistical interactions between pre-treatment subject characteristics (such as rate of utterances, type token ratio, intelligibility, etc.) and language teaching method revealed that lower-functioning children benefited more from a "milieu" training method and higher-functioning children benefited more from a "communication" training program. As they stated:

> Language intervention is . . . costly, time-consuming, and important. . . In order to maximize the outcomes of the intervention process, clinicians must choose one of several possible language teaching methods to address the goals of individual children. (p. 155)

Similarly, clinicians must also investigate various teaching methods used in training **parents** to facilitate language acquisition and must consider the individual needs of the parents they serve.

This study only examined the effects of alternate instructional modes on **mothers'** ability to carry out language programming. Tomasello, Conti-Ramsden, and Ewert (1990) found that differences

existed between mothers and fathers in their verbal interactions with their children. Specifically, a difference in the breakdown and repair sequences used by mothers and children compared to fathers and children was observed. An examination of the effect of instructional style on **fathers'** ability to implement language learning techniques might also, then, present with very different results.

Generally, the results of this study support previous research in the area of joint attention and child language learning. The fact that children were observed to talk more frequently and to produce more CF language under ML conditions strengthens the case for continued parent training programs focused on joint attentional strategies. Coupled with the above, in the current climate of fiscal restraint, SLP's are being encouraged to move away from traditional 1:1 service delivery models. As direct therapy takes a back seat to more consultative treatment approaches, effective interventions aimed at caregivers, rather than at the clients themselves, will become pivotal in the delivery of speech and language services.

Limitations of the Study and Implications for Future Research

In summary, some limitations of this study and implications for future research are as follows:

(a) The intervention provided in this investigation was extremely short in duration. A longer term of intervention might more clearly differentiate the effects of directive and non-directive instructional styles.

(b) In this study, only those mothers who had not received any previous parent training were allowed to participate. Examination of the effects of alternative instructional approaches with mothers possessing various levels of experience in interacting with professionals might have differentiated the effects of directive and non-directive instructional approaches.

(c) Mothers in the current study presented with highly disparate profiles regarding factors such as education and SES. Many other individual variables such as learning styles, learning preferences, and so forth were not considered. Future studies should control for as many of these variables as is possible.

(d) Toys used in this study were randomly chosen according to protocols provided in previous studies (e.g., Larsen, 1988). Toy selection could be more closely scrutinized, according to the degree of child familiarity with each item and the amount of directiveness they tend to elicit in mothers.

(e) Mothers with a wide variety of pre-intervention MF scores were eligible to participate in the current study. In the future, a criterion for maximum usage of MF utterances pre-intervention should be established. Those mothers presenting with a level of MF utterances above this maximum would then be excluded from participating in the study.

(f) Although childrens' linguistic behavior was examined in response to type of mother utterance (i.e., MF or ML), changes in child language behavior pre- to post-intervention were not investigated. In future research of this type, changes in child

language measures from pre- to post-intervention could also be monitored.

Table 1. Chronological Ages (CA), receptive language ages (RLA), expressive language ages (ELA), and percentage of single word utterances (%SW) used pre-intervention for children in directive and non-directive experimental groups.

Directive group subject	CA*	RLA**	ELA**	%SW
1-E~	32	36 (REEL)	24	93
2-E	25	27 (REEL)	18	92
3-E	28	28 (SICD-R)	16	100
4-E	24	33 (REEL)	16	100
5-C~	39	40 (SICD-R)	20	93
6-C	32	32 (SICD-R)	20	85
7-C	34	28 (SICD-R)	20	90
M	30.6	32	19.1	93.3
Non-directive group subject				
8-E	36	36 (REEL)	16	92
9-E	28	33 (REEL)	22	99
10-C	28	36 (REEL)	16	97
11-C	31	36 (REEL)	20	52
12-C	36	28 (SICD-R)	22	76
13-C	28	24 (SICD-R)	16	100
14-C	36	38 (SICD-R)	21	76
M	31.9	33	19	84.6

*CA in months.
**RLA and ELA in months were calculated based on results of the REEL (Bzoch & League, 1971) and the SICD-R (Hedrick et al., 1984).
~C indicates subject was seen in Calgary; E indicates Edmonton.

Table 2. Mother's educational levels and dyad SES intervals.

Directive group mothers	Educational level attained	SES*
1	high school	4
2	college**	1
3	university	4
4	university	6
5	college	4
6	university	6
7	university	3
M		4
Non-directive group mothers		
8	high school	2
9	college	2
10	grade 10	2
11	high school	6
12	high school	2
13	grade 11	2
14	high school	3
M		2.7

*SES intervals calculated according to a formula by Blishen et al. (1987); Blishen & McRoberts (1976).

**College refers to a bible college or community college program.

Table 3. Descriptive statistics for percentages of MF utterances used pre- and post-intervention by mothers in directive and non-directive experimental groups.

Repeated Measures:	% MF pre-intervention	% MF post-intervention	Totals
Group:	Count: 7	Count: 7	14
Directive	M=42.77	M=69.23	56
	SD=16.8	SD=12.95	19.90
Non-directive	Count: 7	Count: 7	14
	M=46.09	M=62.64	54.36
	SD=14.77	SD=10.52	15.02
Totals:	14	14	28
	44.43	65.94	55.18
	15.30	11.84	17.32

Table 4. Percentages of MF utterances used pre- and post-intervention by mothers in directive and non-directive experimental groups.

Directive group mothers	%MF pre-intervention	%MF post-intervention
1	32.0	84.8
2	74.5	80.4
3	40.0	74.6
4	55.3	60.3
5	25.3	47.6
6	38.7	62.9
7	33.6	74.0
M	42.8	69.2
Non-directive group mothers		
8	50.0	58.1
9	18.0	70.9
10	42.3	66.7
11	64.1	42.9
12	45.5	68.8
13	43.9	73.1
14	58.8	58.0
M	46.1	62.6

Table 5. Descriptive statistics for percentage of child verbal output under the MF and ML conditions.

A: Child Utterances/Mother Follow

Mean	Std. Dev.	Count
.592	.264	14
Minimum	**Maximum**	**Range**
.18	1.06	.88

B. Child Utterances/Mother Lead

Mean	Std. Dev.	Count
.521	.05	14
Minimum	**Maximum**	**Range**
.22	.77	.55

Table 6. Descriptive statistics for conversational role (percentage of CF and CL utterances under the ML condition).

A: Child Follow

Mean	Std. Dev.	Count
.594	.114	14
Minimum	**Maximum**	**Range**
.312	.72	.408

B: Child Lead

Mean	Std. Dev.	Count
.405	.114	14
Minimum	**Maximum**	**Range**
.28	.688	.408

Table 7. Descriptive statistics for intelligibility of child utterances under MF and ML conditions.

A: Mother Follow

Mean	Std. Dev.	Count
1.563	.2	14
Minimum	Maximum	Range
1.28	1.88	.6

B: Mother Lead

Mean	Std. Dev.	Count
1.556	.171	14
Minimum	Maximum	Range
1.29	1.87	.58

Table 8. Descriptive statistics for complexity of child utterances under MF and ML conditions.

A: Mother Follow

Mean	Std. Dev.	Count
2.961	.503	14
Minimum	Maximum	Range
1.97	3.43	1.46

B: Mother Lead

Mean	Std. Dev.	Count
2.887	.504	14
Minimum	Maximum	Range
2.05	3.52	1.47

Table 9. Descriptive statistics for intelligibility as a function of child conversation role and preceding maternal utterance.

Group	Mean	Std. Dev.	Count	Min.	Max.	Range
CL (ML)	1.457	.219	14	1.08	1.83	.75
CF (ML)	1.627	.159	14	1.40	1.88	.48
CL (MF)	1.563	.2	14	1.28	1.88	.6

Table 10. Descriptive statistics for complexity as a function of child conversational role and preceding maternal utterance.

Group	Mean	Std. Dev.	Count	Min.	Max.	Range
CL (ML)	2.906	.611	14	1.90	3.67	1.77
CF (ML)	2.784	.508	14	2.24	3.66	1.42
CL (MF)	2.961	.503	14	1.97	3.43	1.46

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APPENDIX A:

STUDY DESCRIPTION FOR PARENTS

The purpose of the study being conducted is to examine different approaches to parent instruction in the speech and language area. Should you become involved, a speech-language pathologist (SLP) would provide you with information on one way to stimulate your child's language development. There would be four sessions in total. These sessions would take place in the Department of Speech Pathology and Audiology at the University of Alberta, Edmonton or in the Speech and Hearing Department at the Alberta Children's Hospital, Calgary. The first session would be approximately 45 minutes in length. You and your child would be videotaped playing together. If necessary, your child's hearing would also be tested during this session. The second and third sessions would be instructional sessions and would each be 30 minutes in duration. Your child would not be present during these sessions. The instruction would involve viewing two videotapes of mothers and children playing together, followed by discussion of the interactions observed. During the fourth session you and your child would once again be videotaped playing together. This session would be approximately 30-40 minutes in length. Should you choose to do so, following the second videotaping session you would be provided an opportunity to view and discuss with the SLP the tapes of you and your child playing together. Every attempt would be made to schedule appointments at a time most convenient to you. There would be no cost for the instruction you receive during this project.

APPENDIX B:

PARENTAL CONSENT FORMS

Permission to Contact Form

I, _____ hereby grant permission for _____, speech-language pathologist with the Edmonton Board of Health/Alberta Children's Hospital, to give my name and phone number to Susan Rafaat of the University of Alberta so that she may contact me with information regarding possible involvement in a research project dealing with early childhood language development and parent education. I understand I am under no obligation to participate in this investigation at the current time.

Dated this _____ day of _____, 1990.

_____

Signature

_____

Phone number

Participant's Informed Consent
Department of Speech Pathology and Audiology

Topic of Project: Parent Instruction Approaches
Principal Investigator: Susan Rafaat Telephone: Edmonton 450-8793
Calgary 229-7044

Description of the Study: This study will examine different approaches to parent instruction. A speech-language pathologist (SLP) will provide you with information on ways to stimulate your child's language development. There will be four sessions in total, all situated in the Department of Speech Pathology and Audiology at the University of Alberta, Edmonton or in the Speech and Hearing Department at the Alberta Children's Hospital, Calgary. The first session will be approximately 45 minutes in length. You and your child will be videotaped playing together. Your child's hearing will also be tested during this first session. The second and third sessions will be instructional sessions and will each be 30 minutes in duration. Your child will not be present during these sessions. The instruction will involve viewing two videotapes of mothers and children playing together, followed by discussion of the interactions observed. During the fourth session you and your child will once again be videotaped playing together. This session should be approximately 30-40 minutes in length. Should you choose to do so, following the second videotaping session we will view and discuss the two videotapes that we made of you and your child interacting. There is no cost for the instruction you receive during this investigation.

Confidentiality of Information: As mentioned previously, records of your involvement in this investigation will be kept in the form of video-taped recordings of you and your child interacting. Audiotapes of the instructional sessions with the SLP will also be recorded. These and any other records associated with this project will remain confidential and only those professionals involved in the study will have access to them. A numerical coding system, known only to the principal investigator, will be used on all of the tapes. All tapes will be erased within one year from the completion of this project. You will not be identified in any publication or presentation of this study.

By signing this document you indicate that you have been well-informed about the purpose and proceedings of the project, and your role in it. By signing this form you also indicate that you consent to participate as a volunteer in the project, but are free to withdraw at any time without any consequences. Your signature also acknowledges receipt of a copy of this consent form and all attachments.

Please feel free to contact me at any time should you have questions or concerns regarding the project.

_____	_____
Participant's signature	Date
_____	_____
Participant's printed name	Witness
_____	_____
Investigator's signature	Investigator's printed name

APPENDIX C:

DEMOGRAPHIC INFORMATION FORM

Please fill out the information requested below. If there are any questions you do not wish to answer, feel free to leave them blank.

Name:_____

Address:_____

Your birthdate (day/month/year):_____

Number of years completed in school:_____

Occupation_____ Employment status:_____ (number of months employed in the last 5 years)

Marital status_____ Number of children_____

If applicable:

Spouse's birthdate:_____ Number of years spouse:_____ completed in school

Spouse's occupation_____ Employment status:_____ (number of months employed in the last 5 years)

Please circle your family's total monthly income before taxes:

1. $1-250
2. $251-416
3. $417-833
4. $834-1250
5. $1,251-1,666
6. $1,667-2, 083
7. $2,084-2,500
8. over $2,500

Average total income over the past five years:_____

APPENDIX D:

TOYS

Musical Drum
Miss. Piggy Jack-in-the-box
See 'n Say Farm Animals
Two plastic telephones
Picture Book
Large doll
Large car
Small car
Truck
Shapes in Can

Tambourine
Noisemakers
Bubbles
Clock
Wind-up Figures
Music Box Radio
Balls
Train
Dog
Top

APPENDIX E:

PILOT STUDY

A pilot study was completed to identify methodological difficulties that might arise during the course of the actual investigation. Of particular concern to the principal investigator was differentiating between the directive and non-directive instructional styles to be used in the study, specifying response definitions in the coding of maternal verbalizations, obtaining inter-judge reliability in the use of the joint attentional coding scheme, and obtaining procedural reliability in differentiating between the directive and non-directive instructional approaches.

It should be pointed out that at the time of the pilot study, experimental questions related to child verbal measures had not yet been included as a part of the investigation. Pilot information regarding these measures is, therefore, not available.

Subjects

Two language normal children and their mothers participated in the pilot project. As the purpose of the pilot study was to resolve potential methodological concerns, recruitment of language delayed children and their mothers was not felt to be necessary. Both dyads were recruited through the University of Alberta Speech and Hearing Clinic; they were the younger siblings and mothers of children receiving speech-language therapy through this agency. One child was 19 months, and the other 18 months of age. Both were the second born of two children. Neither mother reported any concerns with regard to their child's speech, language, or hearing, or with regard to developmental milestones in general.

The educational levels of the mothers involved in the project were a high school diploma and graduate university degree, respectively. English was the primary language spoken in both homes, although the second mother reported that her child was regularly exposed to the Finnish language during visits with her maternal grandparents.

Procedures

Each mother-child dyad was seen for a total of four sessions within a two week period at the University of Alberta Speech and Hearing Clinic. Pre- and post-intervention videotapes of the mothers and children interacting were collected in one of the large therapy rooms at the clinic. The video camera was set up in this room and visible to both child and mother during taping sessions.

Procedures followed those outlined under the Methodology section of the attached investigation. One mother was provided instruction in following the child's lead where the clinician utilized a

Directive instructional approach, and the other received the same information via a Non-directive style.

Following taping of the post-intervention interaction, mothers were requested to fill out the *Individual Parent Instruction Rating Scale*. The purpose of this scale was to obtain mothers' perceptions of the instructional styles used in the parent training procedure. Unfortunately, due to procedural difficulties the mother who received a non-directive intervention approach (subject #2) did not complete the parent survey form.

As a result of this pilot study, minor modifications were made to the procedures utilized during the intervention sessions (e.g., some of the examples used to teach verbal following were altered, the number of toys available during pre-and post-intervention taping was reduced, and instructions to mothers regarding the intervention sessions were revised).

Coding

Analysis of mothers' use of joint attentional strategies with their children was based on a coding scheme by Girolametto (1988), adapted from a system developed by Rocissano & Yatchmink (1983). As mentioned under Methodology, mothers' verbal behaviors were coded as either Mother-Follow (MF) or Mother-Lead (ML). MF verbal behaviors included those that acknowledged, commented, or elaborated on the child's preceding activity or comment (Girolametto, 1988). ML verbal behaviors included those that switched the focus of the preceding activity to a completely new topic, changed the focus to a new aspect of that topic, or maintained the focus on a previous topic, according to the mother's interests (Girolametto, 1988).

As a result of the pilot study, several decision rules were developed to deal with instances of maternal verbal behavior that were felt to be ambiguous in nature. Refer to Appendix F for an outline of these response definitions.

Reliability

Point-to-point reliability was conducted using the joint attentional coding scheme outlined in Appendix F. This procedure was carried out in order to ensure the accurate scoring of maternal verbal behavior. Initially, the mid-10 minute portion of pilot subject #1's pre- and post-intervention videotapes were scored jointly by two raters utilizing an agreement by consensus approach. Once these tapes had been scored and response definitions agreed upon, the same two raters then used the coding scheme to independently score

three-2 minute videotaped segments of mother-child interaction. Percentage of agreement between the two raters ranged from 84 to 100%. Pilot subject #2's pre- and post-intervention videotapes were not scored for reliability purposes due to pragmatic reasons (i.e., technical difficulties with the 3/4 inch videotape they had been recorded on).

Procedural reliability was also completed in order to ascertain that the directive and non-directive instructional styles utilized by the clinician were, in fact, recognizable as such. Two certified SLP's independently rated seven minute audiotaped samples from each of the four intervention sessions carried out with the pilot subjects. Seven minutes represented approximately 20% of the total length of each intervention session. The SLP's were requested to rate the clinician's instructional style in each segment along a 4-point scale as follows:

highly non-directive	somewhat non-directive	somewhat directive	highly directive
1	2	3	4

Although the raters disagreed on the degree of directiveness utilized by the clinician in one sample, they were both able to differentiate between directive and non-directive styles with 100% accuracy.

Results

Results of analysis using the above scoring system revealed no pre- to post-video change in the proportion of MF utterances made by the mother who received the Directive instructional approach. A 17.8% increase in the use of MF utterances by the mother who received a Non-directive instructional approach occurred. The total number and proportion of MF and ML utterances used by the mothers across the two conditions pre- and post-intervention, is provided in the Table below.

Table. Number and percentage of Mother-Follow(MF) vs. Mother-Lead(ML) utterances pre- and post-intervention.

	DIRECTIVE INSTRUCTION		NON-DIRECTIVE INSTRUCTION	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
MF	57 (48.7%)	96 (48.2%)	128 (68.1%)	184 (85.9%)
ML	60 (51.3%)	103 (51.8%)	60 (31.9%)	30 (14.1%)
TOTAL	117	199 (100%)	188 (100%)	214 (100%)

Although these results suggest potential differences in the effectiveness of the Directive and Non-directive instructional approaches, several limitations of this pilot study must be considered.

One obvious limitation concerns the number of subjects involved in this study. Clearly, a larger subject sample is required before any conclusions can be drawn with regard to the effectiveness of the two instructional approaches. Also, the fact that the toddlers involved in this study were language-normal, as opposed to language-delayed may have affected the results obtained. Finally, since only one of the mothers completed the parent survey form, it is not possible to provide any information at this time with regard to maternal perceptions of the two instructional styles used by the clinician.

As was mentioned previously, the primary purpose of this study was to identify potential methodological difficulties and to sort out scoring and reliability issues. These tasks were indeed fulfilled during this project. Based on the findings, implementation of a full-scale study utilizing the procedures outlined above appeared to be warranted.

APPENDIX F:

CODING SYSTEM

Mother Utterances

Mother follow (MF) joint attention statements include those that acknowledge, comment, or elaborate on the child's preceding activity or comment. A MF statement can only ever be immediately preceded or followed by a child lead (CL) statement (see below for a description of CL statements). *Mother lead (ML)* statements include those that switch the focus of the preceding activity to a new topic, attempt to draw the child's attention to another aspect of the same topic, or maintain the focus on a previous topic (adapted from Girolametto, 1988).

Response Definitions

1) Rearrangement of the physical environment by the mother, or "setting up activities" (often found at the beginning of a tape) will not be coded.

2) Directive comments made by the mother that have to do with safety or care issues (e.g., "That ball's too big to throw- it could hurt someone", "Be careful, you could break that toy") will be marked as uncodable.

3) If there is a perceptible pause between a statement and any kind of a tag, such as "o.k.?", or an interrogative like "isn't it?" or "don't you?", these utterances will be coded separately. If there is no perceptible pause, the declarative and the tag will be coded as one utterance (e.g., "That's a car, isn't it?", or "Get the car, o.k.?").

4) If an utterance is completely or partially unintelligible it will not be coded.

5) If the mother verbally re-directs the child, the child complies with the directive, and then the mother acknowledges (praises) the child for his/her compliance (e.g., "That a girl" or "Good boy!"), this acknowledgement will be considered a ML utterance (the utterance is considered to be ML because it is part of a re-direct scenario).

6) If the mother's comment modifies the child's existing behavior, then it is considered MF (e.g., if the mother says, "turn it" while the child is, in fact, attempting to turn the shape so that it will fit into the can). If, on the other hand, the mother directs the child to perform a new or different action with the object of interest, then the statement is considered to be ML (e.g., if the mother says "put it in that hole" and points to another hole). The utterance is no longer modifying the child's behavior, therefore it is considered to be a ML utterance.

7) If the mother comments on a behavior that the child was involved in immediately preceding the comment, but NOT AT THE TIME of the comment, and the comment suggests a shift in topic, then the utterance is considered to be ML (e.g., the child finishes playing with a bear and picks up a car, and the mother says "what a pretty brown bear").

8) If the mother makes a comment inferring the internal state of the child (e.g., an emotion such as happiness, fear, excitement, etc.), and the comment is related to the child's focus or activity, then the utterance is considered to be MF (e.g., As the child backs away from a toy the mother says, "You don't like that, hey?", "Is that scary?", etc.).

9) Conventional event markers (e.g., uh-oh, wow, oh yes, etc.), fillers (e.g., mm, yeah, hey, oh, etc.), and vocalizations not within the context of a phrase or sentence (e.g., animal sounds, telephone ringing, automobile sounds, etc.) used by the mother will not be coded.

10) Utterances comprised solely of the child's name (e.g., "Mary") will not be coded.

11) If the mother makes a single comment acknowledging the child's disinterest in a particular activity, then that utterance will be considered as MF (e.g., If mom says "you don't like that bear" as the child turns away from the bear and goes to pick up another toy). If, however, the mother repeats such a comment more than once in an attempt to direct the child's focus back to the object in question, the first comment will be coded as MF, but each subsequent use of the utterance will be considered ML (e.g., the mother says, "don't you like the bear?", "you don't like this bear, hey?", "poor bear", etc.).

12) If there is a persistence by the mother in presenting a certain topic (e.g., listing a variety of animal names during play with a see'n'say toy) that the child isn't interested in, and the child finally acknowledges this presentation by imitating one of the mother's statements, (e.g., the child says "kitty"), then the mother's subsequent response to the child will be considered ML (e.g., the mother says, "yes, that's a kitty"). (As in #5, the mother's response would be considered ML because it is part of a directive scenario).

13) If the mother asks a question of her child and it is part of a ML scenario, and she then imitates a portion of, or all of the child's response, the imitation will also be considered a ML response (e.g., the mother asks the child "Do you want to get another toy?". The child is playing with something else and says "No", and the mother imitates "No"). Likewise, if the mother asks a question that is considered to be a MF utterance and she then imitates the child's response, her imitation of the child's utterance would be coded as a MF statement.

14) If the mother connects the child's current interest or activity to a past event that is logically related to it, then her utterances will be coded as MF utterances (e.g., the child is playing with the toy dog and the mother comments on how they went to the pet store yesterday to see the dogs).

15) If the mother takes the lead in playing with a toy or commenting on it at the request of her child, then her utterances will be considered to be MF utterances.

Child Utterances

Child follow (CF) utterances are those comments made by the child that maintain the focus of attention that was present in the preceding ML utterance. A CF utterance can only be immediately preceded or followed by a mother utterance that is ML in nature. *Child lead (CL)* utterances are those comments made by the child that are child-initiated or suggest a subtle or dramatic shift in attentional focus from the previous comment. The nature of the action or the object of focus may be subtly altered (e.g., the child moves from commenting about dialing the phone to turning the phone upside down and commenting about that) or the focus may change entirely to a new and different situation (e.g., the child drops

the telephone and picks up a ball) (adapted from Rocissano & Yatchmink, 1983).

Children's comments will also be coded according to utterance type: *Vocalizations* refer to a class of conventional vocalizations such as oh,hey, uh-oh, mm hmm, animal sounds (e.g., moo, woof woof, meow, etc.), and vehicle sounds (e.g., rm rm, zoom, etc.). *Intelligible* utterances refer to words recognizable as the adult form. Child utterances that are unintelligible on the first viewing but are interpreted on the tape by the mother to be true words may be coded as intelligible (likewise, child utterances that are interpreted to be true words by the principal investigator or the independent reliability rater, but not necessarily by the mother, may also be coded as intelligible). *Unintelligible* utterances are partially or completely unintelligible and cannot be interpreted by the principal investigator or the independent reliability rater to be a conventional word.

Finally, child utterances will be coded according to *complexity*, also referred to as *syllable shape* (Wetherby et al., 1988). Each utterance will be coded as +consonant or -consonant and as mono-syllabic or multi-syllabic (see page 33).

APPENDIX G:

INTERVENTION OUTLINE

Session 1

Instructions. "Over the next couple of sessions we're going to discuss some of the ways that you can interact with your son/daughter to encourage him/her to learn how to talk. We'll begin by viewing a videotape of a mother interacting with her own child. I'll just let you look at a couple of minutes of this tape. Then we'll examine some of the other examples of the mother and child playing together. We'll look at examples of how the mother paid attention to her child and talked about objects and actions that he was interested in. We'll also examine some examples of interactions where the mother tried to re-direct his attention when he wasn't ready, and discuss how that affects language learning. Generally, it's been found that when adults follow what the child is interested in and talk about those items and activities, the words are more meaningful to the child. This means the child will be more likely to learn language in these situations.

Before we begin, I'd like to remind you that because this is a research project I will have to restrict our conversation to the videotapes that we view over the next couple of sessions. Although the examples that we view may raise questions about your own child's language development, please limit your comments to the tapes we are looking at. I won't be able to answer any questions that are related to your own child's speech and language development".

Tape #1: SLP starts the videotape for the mother. When the video is finished, the SLP stops the tape. She then sits down next to the mother and they jointly view examples of mother-child interactions from the tape. During the discussion of these segments, the SLP makes use of either a directive or a non-directive interpersonal style, dependent on which experimental group the subject is from.

Show 2 minutes of tape starting at 1:07:00-1:09:00

1) Stop tape at 1:03:57-04:03

Descriptive statement: Here, Andrew calls the toy "baby". His mom imitates him. She says "baby" too. Then she finds the toy he was actually talking about and provides the correct name for him, "No baby. Dog."

Directive

Label: By imitating the word "baby", Andrew's mom lets him know that she is paying attention to the toy he is interested in.

Evaluative statement: This is the type of thing I'd like you to do with your own child when you are playing together and talking about toys. Pay attention to what he/she is doing and talk about it.

For example, if you were playing with a ball and your son/daughter said "ball", you could imitate him/her and say "ball" too. Or, if he/she was simply rolling the ball but not talking about it, you could say something about the activity, "Ball" or "Roll the ball".

Non-directive

Label: By imitating the word "baby", do you think Andrew's mom is letting him know that she is paying attention to the toy he is interested in?

Evaluative statement: So, what do you think you should do when you are playing and talking with your own child; talk about the items he/she is interested in, or talk about other toys and try to direct his /her attention to those? Let's take an example similar to the one we just looked at on the video. If you and your son/daughter were playing with a ball, and he/she said "ball", what would be a good way to respond to that? What if he/she was simply playing with the ball, but not talking about it; What could you say about the activity to encourage language learning?

2) Stop tape at 1:04:23-04:31

Descriptive statement: Here mom realizes that her son is trying to say the word "bubbles". She imitates him, "bubbles". She then provides other words to go with his actions. When he blows to indicate that this is what you do with bubbles, his mom says, "That's right, you blow bubbles".

Directive

Label: Andrew's mom is attending to what he is interested in. You know this because she imitates what he says and she also adds some more information about what you can do with bubbles.

Evaluative: Try naming the toys your child plays with and talk about what he/she does with them. This is a good way to encourage language learning. For example, if your child said "ka" while playing with a car, you could label it correctly for him/her by saying "car". Then you could talk about the car, "Rm, rm, car goes".

Non-directive

Label: Is Andrew's mom attending to his interests or trying to direct his attention in this clip? How do you know this? Does she just name the toy for him, or does she name it and describe it?

Evaluative: So, when you play with your own child, what could you say about the toys you are using? If, for example, your child said "ka" while playing with a car, what could you respond with? Give me an example of some other information you could provide about the car.

3) Stop tape at 1:04:40-05:05
(from this point on, the descriptive statement will only be provided if the mother does not arrive at the desired conclusions in the non-directive approach and appears to be having difficulty following the sequence of events in the video clip).
Descriptive statement: Here, mom is telling her son to turn the drum over. He bangs on the drum.
Directive
Label: She tries to direct his attention to what she wants him to do, which is to turn the drum over.
Evaluative: If you are interested in promoting language learning, avoid trying to direct your child's attention in play situations. Instead, talk about what he/she is already doing. If your child was feeding a dolly, you would be better off to say "Baby eat" rather than telling him/her to put the doll to bed, or having him/her look at a new toy altogether.
Non-directive
Label: Does mom comment on Andrew's interests, or does she try to direct his activity?
Evaluative: What would be an example of a more appropriate comment on the mother's part?
*-If you want to promote language learning during play, are you better off talking about what your child is doing, or what you would like him/her to be doing?
-Suppose your child was playing that he/she was feeding a dolly. Give me an example of something you could say that would let him/her know you were attending to that activity.

4) Stop tape at 1:06:26-06:50
Descriptive statement: Here, mom shows Andrew the moveable man and then the cow. He glances at these toys and then looks to the alarm clock toy he's holding in his hands.
Directive
Label: Instead of trying to direct his attention to items he's not interested in, mom could've talked about the alarm clock toy in his hands.
Evaluative: In order to make what you say meaningful to your child make sure to talk about things he/she is actively involved in. Otherwise he/she won't be likely to learn many new words. He/She won't be tuned in to what you're talking about. For example, at snacktime name the foods you are eating and talk about what you are doing rather than talking about other foods or other activities altogether.

Non-directive

Label: Is mom directing Andrew or paying attention to his interests in this video clip? What would've been a better choice of item to talk about?

Evaluative: Why was this item the most sensible one to be talking about?

*-Is it more meaningful to talk about toys the child is actively involved with, or to talk about toys you would like him to be playing with?

-In which situation do you think he/she'd be more likely to learn more new words?

-If, for example, you and your child are having a snack, what would be something meaningful that you could talk about during that activity?

5) Stop tape at 1:09:46-11:00

Descriptive statement: Here mom and Andrew discuss the various animals they hear on the see'n'say. They name the animals and make the animal sounds.

Directive

Label: Andrew and his mom are both attending to the same toy. They are facing one another with the toy in both of their views. This makes it easier to keep the conversation going.

Evaluative: Try to face one another when you are talking and playing with your own child. For example, if your son/daughter is playing with a car, you could sit facing him/her so that it would be easier to roll the car back and forth between you.

Non-directive

Label: Are they interested in the same activity? How are mom and Andrew seated in this video clip? *(i.e.., are they side by side, is mom behind Andrew?). In which position do you think it's easier to maintain a conversation?

Evaluative: What's an example of a good position to sit in when you are playing with your own child if you want to encourage speech?

-If the two of you were playing with a car, what would be one good way to position yourselves so that it would be easy for both of you to attend to the car?

6) Stop tape at 1:13:13-1:14:23

Descriptive statement: Mom labels this toy "slinky" for Andrew. When she gives it to her son, he is quite interested and spends close to a minute playing with it.

Directive

Label: Mom attends to her son's interests. She plays with the slinky and watches Andrew play with it. But, with the exception of naming the toy once, she doesn't comment on either her play or her son's play.

Evaluative: If you want your son/daughter to learn a variety of different words, make sure you say more than just the names of objects. For example, when you are playing with toy dishes you can talk about the shape and colour of the dishes and what you are doing with them, as well as naming them. "Cup. That's a big cup. Yellow cup. Let's drink from the cup". This way you've used the word in several different contexts.

Non-directive

Label: Does mom attend to her son's interests or direct him in this clip? Once she tells him what the toy she's playing with is called, does she say anything else about the toy?

Evaluative: If you want your child to learn a variety of words, what types of words should you use when you talk with him/her?
*-Do you think it makes more sense to identify things by naming them or by naming them and describing them?
-For example, if you and your child were playing with toy dishes, in addition to labelling them, what else could you say about them?

7) Stop tape at 1:14:50-15:30; 1:15:10

Descriptive statement: Mom plays with the see'n'say. Her son is playing with the alarm clock. After a short time she turns her attention to the alarm clock.

Directive

Label: Initially, mom was talking about a toy that her son had already lost interest in. After a short time, however, she realized that her son was not attending to what she was talking about, so she switched her attention to what he was interested in.

Evaluative: Pay attention to when your child tires of one activity and moves on to another. Then you will be able to switch your focus of attention accordingly and always talk about what he/she is interested in. For example, if the two of you were playing ball and your son/daughter suddenly dropped the ball and picked up a car, you could say "car, rmm, rmm".

Non-directive

Label: Initially, were mom and son attending to the same thing? What happened in the second piece of the video?

Evaluative: Why is it important to notice when your child gets tired of an activity?

-If the two of you were playing ball and your son/daughter suddenly dropped the ball and picked up a car, what would be an appropriate comment for you to make?

8) Stop tape at 1:16:10-1:16:35

Descriptive statement: Initially, Andrew plays with the phone. His mom picks up the receiver and starts talking. While she talks on the phone, Andrew plays with the slinky.

Directive

Label: Andrew's mom is not following his focus of interest. She continues to play with a toy that he is no longer interested in.

Evaluative: Don't persist with a topic that your child is no longer interested in. Even if the toy is something that you think would just require a little practice for your child to master (e.g., a puzzle), if he/she is not interested, the activity will hold little meaning for him/her.

Non-directive

Label: Was mom interested in her son's activity in this segment?
Instead of attending to his interests, what did she do?
*-Did she continue to pursue an activity he no longer found interesting?

Evaluative: Do you think you should encourage your child in an activity that he/she has lost interest in? What if, for example, he/she was playing with a puzzle that you felt would be within his/her reach to complete, but he/she loses interest in it?
-How much meaning would pursuing this activity have for your child?
(Total video viewing time=4.5 minutes)

"Hopefully you now have some idea of the kinds of things you can be doing and saying when you play with your son/daughter that lets him/her know you are interested in his/her activities. This will make it more likely that he/she will learn new words".

Directive: When you play with your own child between now and our next session, think about responding to what he or she is interested in and comment on those items and activities. Don't try to direct his or her attention to something you're interested in.

Non-directive: Based on what we've discussed today, between now and our next session, what will you talk about during play sessions with your child? *-Will you try to direct his or her attention away from the toys he wants to play with?

Next session we'll look at another video and examine some more examples of how mothers interact with their children".

Session 2

Instructions. "Last session we looked at some of the ways mothers interact with their children in an attempt to teach them how to talk. We discussed how you should attend to what they are interested in to promote language learning. Now that you have some idea of the types of behaviors that we're looking for, let's have a look at some more examples of a mother playing with her son.

Again, I need to remind you that although you may have specific questions about your own child's speech and language development, because this is a research project I'm not able to discuss anything other than the interactions we view on the videotape".

(SLP follows the procedure as outlined in session 1).

Tape #2. SLP will use either the directive or the non-directive style, scripted below, to discuss specific examples of mother-child interaction with each subject.

View two minutes of tape starting at 3:18:00-3:20:00
1) Stop tape at 3:10:03-10:20
Descriptive statement: You can see here that mother and son are both looking at the phone and the mom is talking about the phone. She comments on the sounds that the phone makes-"ding-a-ling-a-ling".
Directive

Label: She responds to what David is interested in.

Evaluative: As I mentioned last session, this is what I'd like you to do when you are playing with your own child. Talk about the things he/she is interested in. For instance, if the two of you were playing with farm animals you could make all the different sounds that the animals make.

Non-directive

Label: Would you say she is telling David what to do, or is she responding to what he's interested in?

Evaluative: Based on what we discussed last session, is it more beneficial to talk about what your child is interested in, or to try to direct his/her attention if you want to encourage language learning?

If the two of you were playing with toy farm animals, for example, what would be an appropriate thing to say at that time?

2) Stop tape at 3:11:28-11:38

Descriptive statement: David plays with a car and his mom comments on it.

Directive

Label: David's mom talks about the toy he shows an interest in. She lets him know she's paying attention by imitating what he said, "Car".

Evaluative: Imitating what your child says is a good way to encourage talking. Try to do this when you play with your own child. For example, if your child was playing with some animals and said, "puppy", you could imitate what he/she said.

Non-directive

Label: Did David or his mom choose the topic? What does she say that lets you know that?

Evaluative: Based on this example, what is one technique that you can use to let your child know you are paying attention to him/her?

*-Do you think imitating what your child says is a good way to encourage talking?

-If your child was playing with a puppy, and said "puppy", what could you say in response to that?

3) Stop tape at 3:11:40-12:00

Descriptive statement: In this example, once David gets tired of playing with the car, he switches back to playing with the phone.

Directive

Label: Instead of continuing to talk about the car, his mom comments on his new interest, "Phone, I'm going to talk on this phone". These comments about the phone are meaningful to David because they are related to what he is interested in.

Evaluative: Pay attention to when your child loses interest in one toy and turns his/her interest to something else. Then you can comment on whatever his/her current interest happens to be. If your son/daughter was playing with a see'n'say, and then decided to pick up a jack-in-the-box, you could comment on that,"Jack-in-the-box. Pop, up he comes!"

Non-directive

Label: What does David's mom say in reaction to his change in activity?

-Why was that a good choice on her part?

*-Does that let David know she is paying attention to the same thing he is?

Evaluative: What is advantageous about paying attention to when your child tires of an activity?
*-Does this make it easier for you to switch your attention to the items and actions that he/she is interested in?
-If _____ was playing with a see'n'say toy and then decided to pick up a jack-in-the-box instead, what would it make sense for you to comment on? -What could you say?

4) Stop tape at 3:12:24-3:12:56
Descriptive statement: Mother and son are taking turns with one another in this segment. They imitate one another and take turns with actions by rolling the car back and forth.
Directive

Label: The words they use are directly associated to the activities they are involved in. They are both attending to each other's words and actions.

Evaluative: Make sure to talk about the things you are involved in at a certain time, rather than trying to talk about something that the child cannot relate to. This way the language you use will be more meaningful to your child. For example, if you are getting dressed in the morning, it would make more sense to talk about clothing than it would to talk about food.
Non-directive

Label: Is their discussion related to the activities they are engaged in?
-Is either one of them directing the interaction?

Evaluative: If you want to encourage language learning, what types of activities should you talk about?
*-Do you think you should talk about current activities or about things that have already happened?
*-Which would be more meaningful to your child?
-talking about activities that are currently taking place, or about things that have already occurred?
Let's look at the example of getting dressed. What would be the most sensible thing to discuss at this time?

5) Stop tape at 3:26:48-3:27:25
Descriptive statement: Mom looks in the toy box for some books while David finds the jack-in-the-box. She watches him for awhile and then she comments on the jack-in-the-box.

Directive

Label: Initially Mom was not attending to David's interests. Then she noticed what he was doing and watched him silently for a short time before she actually commented on the activity.

Evaluative: Sometimes it is a good idea to just wait and watch what your child is going to do or say before you start talking. This gives him/her a chance to initiate the conversation. For instance, if your son/daughter picked up a ball and was looking at it, you could just sit and watch for a minute before you say anything. Then, if your child still didn't comment on it, you could say something like, "Ball. Big, red ball".

Non-directive

Label: Initially, was mom attending to David's interests? Then what happened?

-Did she comment on his activity immediately?

Evaluative: What would be an advantage to silently watching your child's play before you comment on it?

*-Do you think that by silently watching and waiting you could be giving him/her a chance to initiate a conversation?

-If your child picked up a ball and was looking at it, instead of saying something right away what could you do?

-When you did finally comment, what would be an example of an appropriate thing to say?

6) Stop tape at 3:14:00-3:15:15

Descriptive statement: Mom chooses a cow and then an alligator from the toy box.

Directive

Label: Mom has directed their play and you can see that David wasn't happy with either of her choices.

Evaluative: Whenever possible give your child the choice of toy to play with. If you think a whole box of toys is too overwhelming you could just give the choice of two or three.

Non-directive

Label: Who directed the play in this excerpt? What did David think of the toy choices?

Evaluative: What would have been an alternative to mom choosing the toys? What is something else that mom could've done so as not to overwhelm David?

*-Rather than choosing from amongst a whole box of toys, what could've mom let David do?

7) Stop tape at 3:20:05-22:05
Descriptive statement: Here, David's mom selects all of the toys they play with.
Directive
Label: Rather than following David's interests, you can see that she is directing their play.
Evaluative: Whenever possible in play situations, try to give your child a choice of activities. In this example, David's mom would have been better off to drag the toy box over to him and allow him to choose an activity. That way, she would've known he was doing something he was truly interested in, and she could've let him know she was attending to his interests by talking about what he was playing with.
Non-directive
Label: Is David directing the play in these segments or is his mom?
Evaluative: What could this mom have let her son do to ensure that he was really interested in the things they were doing?
-How could she have then let him know she was interested in his choices?
-So essentially, are you better off choosing the activities or giving your child the choice of activities?

8) Stop tape at 3:23:13-24:00
Descriptive statement: Here, mom and David play with the blocks and the can. Then she comments on the activity.
Directive
Label: Mom is attending to the same toy as David. You know that because she comments on how "tough" it is.
Evaluative: The more often your child hears a word, the more likely he/she will be to attempt to say it him/herself. Try to repeat new words two or three times instead of just saying the word once in a sentence. If you were talking about a ball you could say, "Ball, that's a red ball, red ball".
Non-directive
Label: Is mom attending to the same toy as David? What word does she use to comment on the activity?
Evaluative: What effect do you think Mom's repeating the word "tough" had on David?
*-Do you think that repeating the word increased the likelihood that David might try to say it?

-So, instead of just saying a word once, what could you do when you are talking with your own child? Give me an example of how you might incorporate the word "ball" into a sentence two or three times.

(Total video viewing time=5.9 minutes)
*Note: *denotes questions that will be asked only in the event that the preceding question was not answered correctly (i.e., mother requires further clarification).

Instructions: "Now that we've spent some time discussing ways you can promote language learning, I'd like to see if you can incorporate some of these techniques into your play with your own child. Next session we'll take another video of you and your son/daughter playing together. If you'd like, once we have completed the taping we can go over both of the videos and see how you did at following his/her interests".

# of clinician words: Directive=1423, Non-directive=1189-1423, dependent on the number of guiding questions required by each mother to arrive at the desired conclusions about each example of joint attention.